

Motor Age

Vol. II. No. 3

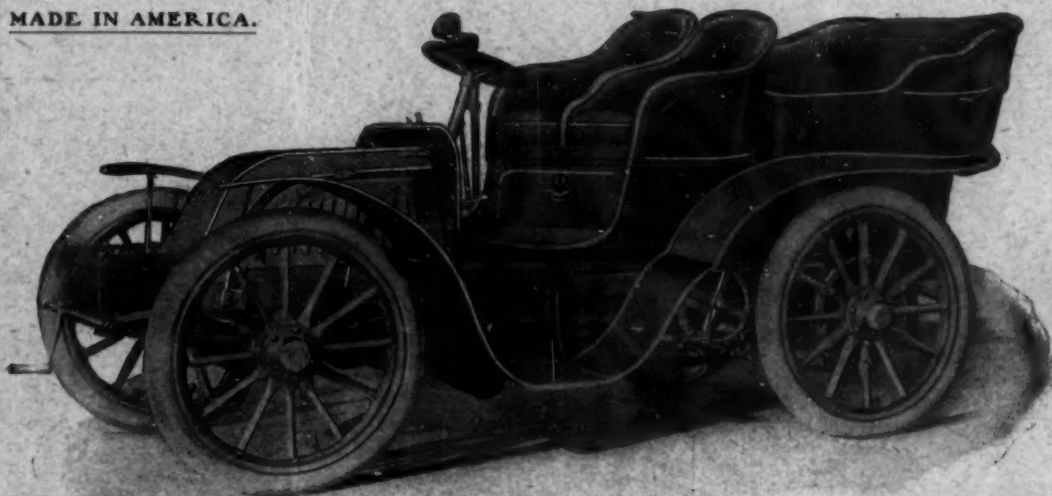
JULY 17, 1902

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Motor Age

WITH WHICH IS INCORPORATED
CYCLE AGE

VOL. II. No. 3.

CHICAGO, JULY 17, 1902.

\$2.00 PER YEAR

THE RACE FROM PARIS TO VIENNA

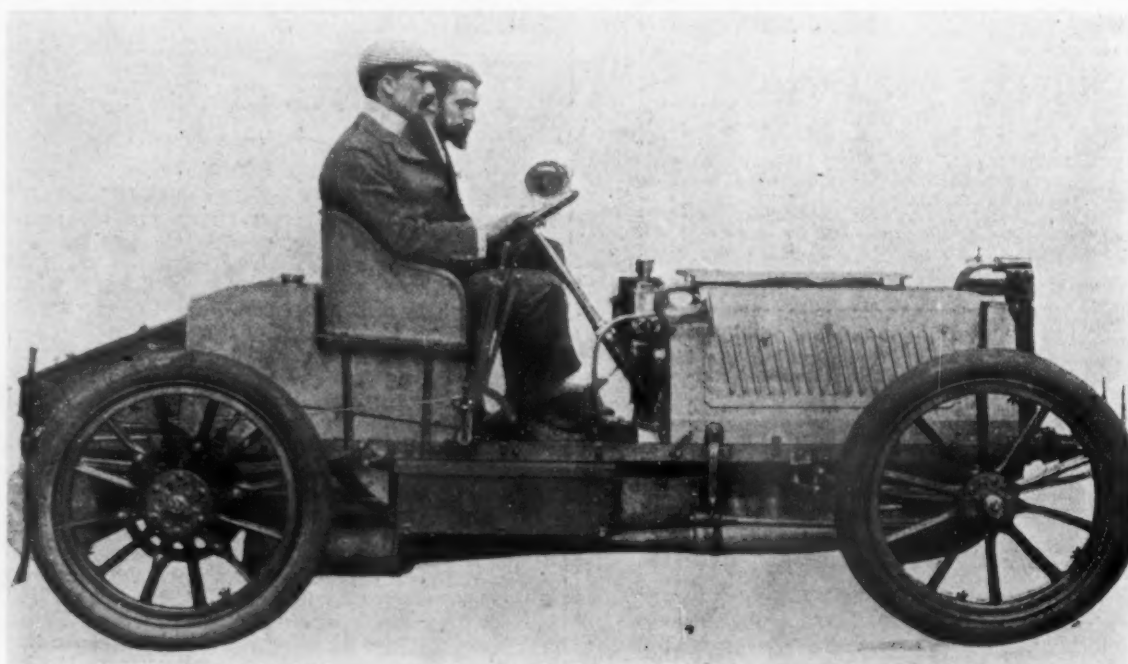


As the speed contest last year from Paris to Berlin marked the beginning of what was hoped to be an annual series of great international races and showed for the first time the marvelous possibilities of heavy racing machines propelled by motors of exceptional power, so the race from Paris to Vienna has again aroused a vast international interest in automobilism and is proving a still more severe test to the latest productions of the autocar industry. Last year the object of the tests was to show whether the vehicles could be safely driven at the terrific speeds which had been calculated

with their powerful engines, but on the present occasion manufacturers find the problem of a more technical and scientific character, for not only are they obliged to do what they can to improve on their previous performances as regards speed, but they must accomplish this result under less favorable conditions by bringing the weight of their cars within the limit of 1,000 kilogs., fixed by the Automobile Club de France. Any heavy reduction in the powers of the motors is out of the question, and thus makers have aimed first of all at diminishing the weight per horse-

power, with the result that the majority of manufacturers are fitting more powerful engines than last year without increasing the weight. In fact, in many cases the engines, while being more powerful than last year, are appreciably lighter. It is, however, in the frames and propelling machinery that makers have been cutting away material, and a cursory examination of the vehicles would seem to show that they have narrowly skirted the bounds of imprudence; but when it is seen how much care has been taken in the construction of each piece, and how nothing has been left to hazard in the selecting and working of the best possible material, there seems to be every reason for believing that manufacturers have got the maximum of power and strength for the weight allotted to them. We have shown how this has been done in the Charron, Girardot et Voigt

tween 70 and 80 horsepower than the 45 or 50 horsepower at which it is rated. For such an engine the underframe appears extremely light. The change speed gear is entirely different from that on the old Mors cars. For the first three speeds the primary shaft carries the usual train of sliding wheels, and both the primary and secondary shaft gear on bevel wheels on each side of the differential. At the low speeds the end bevel on the primary shaft runs free, and when the sliding train is pushed right forward a clutch keys this loose pinion and the drive is direct. A feature of these cars is the system of pneumatic suspension, consisting of a series of cylinders and pistons interposing between the axles and the frame. The cylinder is fixed to the frame above the spring and the piston rod at the junction of the spring with the axle, and as the pistons



S. F. EDGE, DRIVER, AND MR. NAPIER, BUILDER OF THE GORDON BENNETT CUP WINNER.

cars, and how in the Panhards the power of the motor has been greatly increased without appreciably adding to the weight, while it is actually lighter than the Paris-Berlin engines. In several types of new racing vehicles the secondary or "false" chassis has been suppressed and the motor and gear box are bolted directly on to the main frame. In the Mors cars there is some mystery about the powers of the new motors, which are rated at 45 horsepower, though, of course, developing much more, and the firm is said to have made no attempt to construct more powerful engines, since it has preferred to secure a better utilization of propelling effort. In the Gordon Bennett cup car, driven by Fournier, however, the engine is much more powerful, and we should think that it is one of the biggest engines yet fitted to a French autocar. The four cylinders are enormous and look more like developing be-

are airtight they serve the purpose of pneumatic buffers to prevent the wheels from jumping on the road, at the same time they save the springs and considerably reduce any liability to breakage.

The race to Vienna is not only a test for speed, but more especially for endurance, as it appears that the road over a third of the distance is far from being as good as the course to Berlin last year. From Paris to Belfort, a distance of 253 miles, the cars will be able to travel at full speed, and it is quite possible that we may look for some phenomenal performances on this section. Between Belfort and Bregenz the distance is 194 miles, and the competitors will have to travel through Switzerland as tourists. The decision not to race over this section seems to have disappointed the Swiss, who had been looking forward to an opportunity of seeing the cars travel at high speeds; but the

authorities express themselves satisfied with the determination of the automobile club to neutralize this part of the course, for though they would not have run the risk of being accused of hostility to the automobile by prohibiting the race, they nevertheless recognize that some of the roads are not suitable for racing speeds. Between Bregenz and Salzburg—209½ miles—the troubles begin. Until a few days ago there was a question of neutralizing a part of the course, and especially the passage of the Arlberg, which was blocked with snow; but it is now stated that the pass has been cleared, and though extreme care will be needed in driving the cars, there is now no longer any question of neutralizing this section. Those competitors who have been over the course are far from being enamored of the road to Salzburg, which is not only narrow and often in bad condition, but the gradients here and there are very dangerous, some of them being said to be as much as one in five, while the drains and ridges crossing the road are innumerable and will keep competitors perpetually on the lookout. To make matters worse, the heavy rains made the going terrible for those who have been prospecting the route, but it is to be hoped that this difficulty at least will be overcome with the change in the weather, though it is clear that we cannot look for fast speeds on the way to Salzburg, and if the vehicles come through unscathed it will be a question of good luck and careful driving. From Salzburg to Vienna the going is satisfactory, and competitors will be able to once again fully test the speed capabilities of their vehicles upon this section of the route.

A special train which had been organized to follow the race carried more than its usual complement of passengers. The morning opened remarkably fine and gave every promise of a hot and clear day. It was broad daylight when we left Champigny by the long hill leading to the plateau which had been the scene of several similar gatherings, and it was from here that the start took place for the races to Amsterdam and Berlin. The start was first of all given to the vehicles for the Gordon Bennett cup, which was to be competed for in two stages, from Paris to Belfort and from Bregenz to Innsbruck, making a total distance of 379 miles. Of the three Wolseley cars only one, driven by Mr. Austin, took part in the race, and S. F. Edge therefore competed with his new Napier vehicle. Promptly at 3:30 M. Girardot was sent off with his C., G. V. car, and then followed, at intervals of two minutes, Fournier in a Mors, S. F. Edge and the Chevalier Rene de Knyff. Considerable interest centered in the Mors, which started in remarkably fine style and got up full speed in a way that did not leave the slightest doubt as to the power of the vehicle. The others were sent off, and the chief machines were as follows:

Cars weighing from 650 to 1,000 kilogs. (12 cwt. 3 qrs. 5 lbs. to 19 cwt. 2 qrs. 20 lbs.)—Seven 70-horsepower Panhards, one 60-horsepower Panhard, five 40-horsepower Panhards, five 60-horsepower Mors, two 40-horsepower Mors, two 50-horsepower Peugeots, five 12-horsepower Gardner-Serpollets, three 40-horsepower

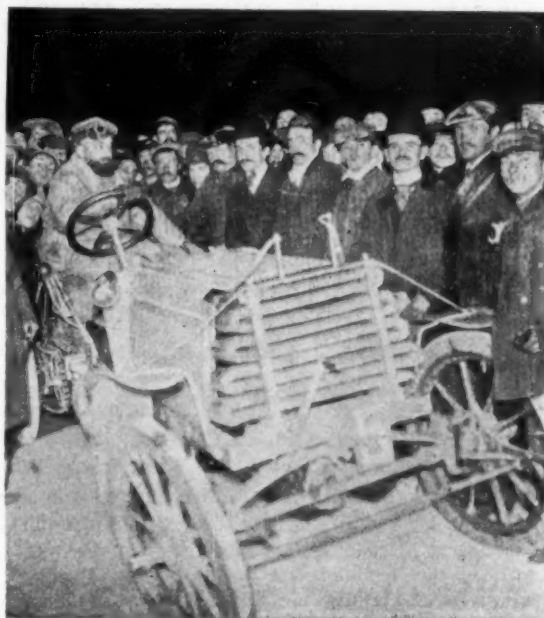


Henry Fournier—A Flashlight Picture at the Start

Mercedes, one 24-horsepower De Dion, one 40-horsepower Napier and one 30-horsepower Wolseley.

Cars weighing from 400 to 650 kilogs.—Two 20-horsepower Mors, six 24-horsepower Darracqs, three 18-horsepower Decauvilles, three 18-horsepower Gobron-Brillies, one 24-horsepower Panhard-Levassor, four 20-horsepower Clements, one 16-horsepower Peugeot and one 16-horsepower Renault.

Cars weighing 450 to 650 kilogs.—Four 18-horsepower Gobron-Brillies, five 18-horsepower Decauvilles, two 16-horsepower Renaults (the one driven by M. Marcel Renault did fastest time for the entire course), four 24-horsepower Panhard-Levassors, three 16-horsepower Delahayes, three 16-horsepower Darracqs, four 24-horsepower Clements and three 20-horsepower Dechamps.



De Knyff—Photographed by Flashlight at the Start.

Cars up to 400 kilogs.—Two 10-horsepower Georges Richards, four 8-horsepower Renaults, two 12-horsepower Darracqs and three 8-horsepower Corres.

Motor tricycles—Three 7-horsepower De Dions.

Motor quadricycles—Two 7-horsepower De Dions.

Motor bicycles—Three 3-horsepower Clements, two 2-horsepower Werners and three 3-horsepower Laurin-Klements.

After seeing the first vehicle started the passengers by the special had to return to Nogent le Perreux, and then another interesting element developed itself in a race between the express and the cars. Just as we were leaving Nangis a car flew past along the road running parallel with the railway. It was going at a terrific speed, appreciably faster than the special, which was doing 50 to 55 miles an hour. For some time the car gradually forged ahead, and then the road curved outward, when the car got smaller in the distance, like a speck with a white tail, and then disappeared altogether. This was probably Fournier. At Nogent-sur-Seine the train again skirted the road for a considerable distance, but there was no sign of the cars, from which it was clear that they were going as fast as the special express. At Troyes there was a short halt, when it was announced that Fournier had passed through first, with De Knyff second and Edge third.

Mors and the express, which was now traveling at its maximum rate, Fournier drew up to the side of the road and stopped. He threw up his arms as a signal that something was seriously wrong. It turned out afterward that a shaft had broken and it was said to be the starting shaft, though it is difficult to understand how this could have stopped Fournier so long as his engine was running. When Maurice Farman slowed down to inquire as he passed, later on, Fournier declared that the damage was "irreparable," so it was probably one of the gear shafts.

The arrival took place on the outskirts of Belfort on the top of a slight up-grade, giving a view of a half-mile stretch thickly shaded by trees. At about 10:40 a succession of bugle sounds was heard, very faint, in the distance, and then growing louder, and a few minutes afterward a car dropped down the hill in the distance with a cloud of dust, and then dashed up the gradient to the control. It was De Knyff with his 50 nominal horsepower Panhard, whose time for the distance of 253.3 miles, including neutralizations, was 7h. 11m. 30s. As M. de Knyff was running with alcohol, for which he had carried out slight modifications to his carburetor and engine, he won the alcohol cup offered by Prince d'Arenberg for the first car arriving at Belfort with this spirit. De Knyff declared that he had not met with the slightest trouble on the road and



THE DARRACQS, EVERY ONE OF WHICH COMPLETED THE JOURNEY.

Another short stop was made at Chaumont, where we learned from the control that Fournier had just passed through. Neither De Knyff nor Edge had yet passed, and it had long been understood that Girardot had broken down. Soon after leaving Chaumont the road again ran parallel with the railway, and the dust, which was still hanging in the air, showed that Fournier could not be far ahead. The dust thickened and just as we were anticipating a fine struggle between the

had not even been obliged to stop for punctured tires. Several other competitors spoke highly of the way in which the tires (Continental and Michelins) had come out of the ordeal, for they had rarely been put to a more trying test. On finishing they were quite hot. About 20 minutes after the arrival of De Knyff the bugles announced the second car and Henry Farman stopped at the control, followed 9 minutes afterward by his brother Maurice, with C. Jarrott close in

the rear, though, calculating the starting times, Jarrott was third, and he said that as Henry Farman did not stay the full time at all the controls he thought that he had secured the second position. Jarrott declared that his run was remarkably uneventful. The only trouble he experienced was the dust. He tried repeatedly to pass the cars that preceded him, but finding himself blinded with the dust and unable to distinguish either

causes which put the cars out of the running. That they are fast there can be no question, for Fournier was traveling at a phenomenal rate during the first 150 miles, and it is probable that had he got through his performance would have been a record one. The Darracqs were, as usual, consistently good, but the Napier seems to have been somewhat underpowered, and though traveling with great regularity it was unable to



WOLSELEY RACER, WHICH WAS DELAYED IN TRANSIT AND ARRIVED TOO LATE TO START.

the road or the car, he prudently contented himself with following at a respectful distance. Mr. Jarrott had heard that one of the Mors cars had been smashed up through driving into a tree, and it afterward turned out that this was the Mors driven by Mr. Rolls.

The first stage of the race was a great triumph for the Panhards. They kept coming through with remarkable regularity, and the arrival of Pinson and Teste almost together saw the first half a dozen places fall to Panhard cars. L. Renault showed up in the first flight with a Renault voiturette specially built for this race, and then came a Darracq, the Mercedes of M. Zborowski, and a Darracq running with alcohol. The next was S. F. Edge, and then came the first Mors, driven by Baron de Caters. Among the other cars finishing were a C., G. V., driven by Giraud, two or three of the Gobron-Brillie-Nagants, which did very good performances despite their somewhat original construction with rear motors, and it is probably on account of their great simplicity that they ran with so much regularity; the Serpollet cars, in which the generators are fired with alcohol, and the new De Dietrich cars, which are constructed upon the Turcat-Mery system, of which we gave an account at the time of the Nice meeting. Despite the stupendous efforts made by Mors to make up for their recent abstention from racing by plucking fresh laurels in the Vienna event, only four of their cars finished, but whether this is due principally to bad luck can only be ascertained by an examination of the

compete with the fastest of the new highly powered French vehicles. The cars followed each other at short intervals all the afternoon, and altogether nearly 120 arrived before the start on the next stage the following morning.

Friday was a sort of informal day. As the whole of Switzerland had been neutralized, the vehicles went from Belfort to Bregenz as tourists and were required to keep time at the different towns to prevent any possibility of excessive speed. If Belfort had been enthusiastic to the extent of charging absurdly extortionate rates for their visitors who had not previously booked room in the hotels, Bregenz was utterly absorbed in the autocar race. The town was decorated with flags, and the event was made the occasion of a holiday, for the whole population was out of doors to witness the arrival of the cars. The day was intensely hot, despite a rather stiff breeze which had no other effect than to raise blinding clouds of dust. Starting from Belfort at 4 o'clock in the morning, Chevalier Rene de Knyff reached Bregenz shortly after 3 in the afternoon, closely followed by Henry and Maurice Farman, Pinson and the Darracq cars. So far it does not appear as if any incident has taken place along the road, but all the drivers complain of the dust. They were nearly unrecognizable. The next racing stage is on to Salzburg, which is likely to be one of the most trying courses the cars have ever traveled over at high speeds in a race.

The third day and second stage of the racing, from

Bregenz to Salzburg, 226 miles, included the ascent and descent of the Arlberg, the road being over 5,000 feet above the sea at the summit of the pass. The event of the day was the finish of the Gordon Bennett at Innsbruck, which, deducting the distance of the procession through Switzerland, made the cup contest 379 miles of actual racing. De Knyff led away on his 70-horsepower Panhard, only to be overhauled by Edge not very far from Innsbruck, the French champion having broken down. Both of them—in fact, the same remark applies to all the competitors—had a most exciting time in going down the Arlberg, as the roads were in a shocking condition, and the very steep and dangerous descents and sudden twists and bends of the road made driving at speed little less than a nightmare. The fastest time was made by Baron de Forest on his Mercedes—4h. 39m. 50s. Next came Marcel Renault nearly an hour later, although he did fastest light car time, and the performance of the Baron de Forest, considering the course, was nothing less than remarkable. The third man was Henry Farman on his big Panhard, followed closely by Count Zborowski and Edmond. The fastest in the voiturette class was Guillaume, while Osmont did the best among the motor cycles, though his time was very poor.

M. Marcel Renault, on his 16-horsepower light car, made the fastest time from Salzburg to Vienna (210 miles). He was followed by Baras, Zborowski, Emery, M. Farman and De Caters. The fastest net time—5h. 15m. 5s.—in the heavy car class was accomplished by Count Zborowski on the Mercedes, and M. Farman on the Panhard was 2m. later. Edge's time for this section was eighth in the order of merit. In the light car section the Renault brothers were of course the first and second, as their times were fastest of the day irrespective of class, these being 4h. 40m. 7s. and 5h. 11m. 1s. In the voiturette class Guillaume, on a Darracq, finished first in 6h. 18m., while Osmont did best motor cycle time on his tricycle, occupying 7h. 40m. 54s. for

the journey, and Bucquet, on a Werner, did fastest motor bicycle time, less than 2m. inside Osmont's time. After the excitement of the previous day, the last stage was comparatively unexciting. The above times are without the neutralizations, as there was not time to work them out finally. At the last moment we learn by wire that it was officially declared two days after the finish that the fastest time (26h. 10m.) was accredited to M. Marcel Renault on his 16-horsepower light Renault. The second fastest time was Henry Farman's, on the 70-horsepower Panhard—26h. 34m. Mr. Farman consequently wins the 650 to 1,000 kilog. section, while M. Renault is the victor of the light car 450 to 650 kilog. section. The third fastest time goes to M. Edmond, who drove a 24-horsepower Darracq in 26h. 46m., and thereby takes second place in the light car section. M. Maurice Farman, on his 70-horsepower Panhard, 26h. 51m., and Count Zborowski, on his Mercedes, 26h. 58m., are fourth and fifth respectively. It would appear Zborowski did the fastest time, as he was penalized 40 minutes for an alleged infringement of one of the rules while passing through Switzerland, but until we have details of the matter it is impossible to say whether he really did the fastest time or not, though it would appear his actual racing time was the best, as the Swiss section was not a speed trial. Guillaume, on a Darracq, won the voiturette section. The first place among the tricycles goes to Osmont, while Bucquet, on the Werner, took the first place among the motor bicycles, and the second position was also obtained by a machine of the same make, all or nearly all the other bicycles failing to stand the tremendous strain.—The Autocar.

Record of Eight Years' Racing

The following table, showing the winners, distances and times of the great European road races since 1893 is interesting as indicating the improvement in vehicles in the interval:



THE START AT CHAMPIGNY. LOOKING TOWARD AND FROM THE STARTING POINT.

1895, Paris-Bordeaux-Paris; 714.2 miles—4 horsepower Panhard. Average speed, 14.88 miles.

1896, Paris-Marseilles-Paris; 1,096.4 miles—6 horsepower Panhard. Average speed, 16.74 miles.

1898, Paris-Amsterdam-Paris; 931.2 miles—Charron—8 horsepower Panhard. Average speed, 27.90 miles.

1899, Tour de France; 1,426 miles—Rene de Knyff—16 horsepower Panhard. Average speed, 33.48 miles.

1900, Paris-Toulouse-Paris; 835.8 miles—Levegh—24 horsepower Mors. Average speed, 41.04 miles.

1901, Paris-Berlin; 742.8 miles—Fournier—40 horsepower Mors. Average speed, 44.08 miles.

1902, Paris-Vienna; 609.5 miles—16 horsepower Renault. Average speed, 38.68 miles.

Announcement of Final Awards

The final classification in the Paris Vienna race has been completed. The first nine arrivals, after they had been changed from one position to another several times, have been given places as follows:

Marcel Renault, Renault light vehicle.....	26:22:43 4-5
Henry Farman, Panhard heavy vehicle.....	26:36:30 1-5
Edmond, Darracq light vehicle.....	26:45:10 1-5
Zborowsky, Mercedes heavy vehicle.....	26:48:09 1-5
Maurice Farman, Panhard heavy vehicle.....	26:54:29 2-5
Baras, Darracq light vehicle.....	27:39:50 3-5
Teste, Panhard heavy vehicle.....	27:48:38 4-5
Hemery, Darracq light vehicle.....	27:58:38 3-5
Marcellin, Darracq light vehicle.....	28:13:30 4-5

Baron de Crawhez on a Panhard will probably receive tenth place, his time being 28:40:20. These times include the journey through Switzerland and all the other neutralized points along the road and must not be taken into consideration in computing the racing speed. In passing over Swiss ground the racers were kept within the legal limit of speed.

Motor Cycle Racing in New York

NEW YORK, July 12.—An amateur 5-mile race for motor cyclists was one of the features of the bicycle race meet at Manhattan Beach this afternoon. Walter W. Smith, father of young Walter Smith, the crack amateur, was an easy winner in 8:23 2-25. S. W. Anderson, of Brooklyn, was second; H. Murray, of Brooklyn, was third.

Kansas City Promotes Severe Test

Relative to the club the automobilists of Kansas City have organized, Secretary, W. L. De la Fontaine writes: "The prospects look encouraging and I believe the club will be successfully accomplished in starting out with thirty or thirty-five members. We are going to have an endurance contest on July 18. The Libertyville and Waukegan course is not in it with the one that we have chosen through Jackson county. The roads here, in the city, as well as in the country, are nothing but a succession of hills from one-quarter to one mile long, and about from 12½ to 25 per cent grades. The contest will fully demonstrate the durability and power of the several types of machines here. The contest is open to all automobilists. We have up to date received fifteen entries and before the expiration of the entry

limit, which closes July 17 at midnight we expect to have thirty."

Since this letter was written the club has appointed a committee to visit the Kansas City Driving Park Association and try to arrange for a temporary home in the association's new club house. The officers of the club are Louis Curtiss, president; Ferd Heim, vice-president; C. F. Lovejoy, treasurer and Myron C. Albertson, secretary.

The Long Island Race Meeting

The requisites for an automobile speed contest, while few, are necessarily important. These requisites comprise, first, a cool-headed driver, second, a car with ample power and safe construction, third, a track of sufficient width, well banked, and having a roadbed that is neither too hard nor too soft. The owners of speedy automobiles supply the first two requisites, and the Long Island Automobile Club will supply the third on August 23, when the Brighton Beach race track will be used for the first series of automobile track races to be held in the vicinity of New York. This club was the first in the country to hold an endurance test (April 20, 1901), was the first, also, to hold mile straightaway record races (Nov. 16, 1901, on Coney Island boulevard), and now is the first to hold a series of track events which will introduce many novel features, and permit of the competing of cars driven by motive powers of varying classes.

Will Assist Chicago Club Next Year

NEW YORK, July 10.—The invitation of the Chicago Automobile Club asking the co-operation of the New Yorkers in the New York-Chicago endurance run project was received and read at the meeting of the governors of the A. C. A. to-day. The idea seemed a good one, but the board felt it would have to decline co-operation with regrets, owing to its having the Boston-New York test already on its hands. The opinion, however, was expressed that a project of this kind might perhaps receive the club's co-operation next year.

Cleveland and Detroit Circuit

CLEVELAND, O., July 14.—The Cleveland Automobile Club will probably hold its first meet about September 17. This date has been selected to immediately precede the meet to be held in Detroit. Cleveland will have but one day of racing because the game is new here and it is not certain that the fickle public will take to it. Detroit which has had a successful meet, will have two days.

A meeting of indignant citizens was held at Patchogue, Long Island, last week to devise plans to restrain and punish people who break the speed law. An organization was perfected to enforce the laws. Officers and an executive committee were elected and these gentlemen are to be appointed special deputy sheriffs.

The Milwaukee council is discussing an ordinance limiting the speed of automobiles in the city to 8 miles an hour and to 4 miles in crowded streets. Owners must take out 25 cent licenses and display the number of the licenses on their machines.

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The editor will be glad to receive communications for publication. They must be accompanied by the names and addresses of senders, which will not be used if request be made to that effect. Contributions will not be paid for unless accompanied by notice that payment is expected.

Subscription, Two Dollars a Year, - Six Months, One Dollar

EDUCATION OF THE AMATEUR.

The manufacturer or agent who sells a machine to a man who has had no previous experience, almost invariably gives his customer credit for greater knowledge of the construction of an automobile than he really possesses. Trouble would be saved if they would take it for granted that the buyer knows nothing about the subject and treat him accordingly. Some makers have prepared complete descriptions of their cars in such shape that nearly anyone can understand them, but such cases are few.

The only way in which a customer can obtain the instruction to which he is entitled and which will enable him to understand his machine so thoroughly as to render it unnecessary for him to visit the maker or dealer repeatedly, or to swelter in the hot sun trying to locate some trivial trouble, is to mount a machine in the store, so that it can be operated, stripped of the body. This may seem a lot of trouble to makers who are at present worried about how to produce machines fast enough to supply the demand, but it will have to come. The bulk of the buyers of to-day are men who know something about machinery and who are able to understand, in a general way, the principles of operation, but the day is at hand when this class of customer will be in the minority and when candidates for ownership will be found among men to whom machinery is as Greek. To sell a man of this class a machine and allow him to figure it out for himself is a crime. It would do, and is already doing much to hurt the automobile in the opinion of the masses. Not only does the unfortunate beginner find occasion to use profanity, but the public sees him in trouble by the road-side and forms the opinion that the machine is an experimental toy. Any operator who has had occasion to stop on a country road—and who has not?—knows full well that about half the people who pass will ask him if he has "broken down." That sort of thing is certainly not

beneficial to the industry. Much of it might be avoided if the machine were properly understood by the owner. One maker made application to the management of the last Chicago show for the racing machines, used. His intention was to install them in his factory to test and run machines. If the same thing were done in a great many stores the result would be beneficial. The purchaser could be taught every detail of the machine before venturing into the country. The time is coming when facilities of this kind will count.

RACING, AN EXPENSIVE PASTIME.

Men who have taken part in automobile races up to date have generally been of a class which cares little about a few dollars, more or less, in the matter of the cost of the competition. This applies particularly to people in the east where practically all the racing has taken place. But as time passes contestants will consider the cost. The lower the cost the greater the number of competitors and the better the racing. The matter of entry fees will have to be given attention. Up to date the price of a place in an automobile race, at all meetings save that at Joliet last fall, has been ten dollars. For the man who wants to take part in more than one race in a day this is a pretty steep figure. The same amount, or more has been charged for the endurance runs. This means that men who would be glad to compete for the fun of the thing have begun to ask why they should be charged this sum for the privilege of demonstrating something which is of no real advantage to them but is of great advantage to the maker.

Perhaps western people are less willing to spend their money for the advantage of the industry than are those of the east. At any rate more than one man who had been figured on as a sure starter in the Chicago club's endurance test has made the same reply—that he can see nothing to be gained. He is satisfied that his machine will go the distance and cares little whether other people know it or not. From a purely business-like standpoint he may be right. Entry fees should be lower. Promoting clubs, if anyone other than the manufacturers, should be the philanthropists. In cases where gate money is charged this is particularly true.

SUBTERFUGES OF THE TRADE PRESS.

Two styles of padding are indulged in by the publishers of unreliable trade journals, and, sooner or later, result disastrously to the people by whom they are practiced. The first is the padding of the advertising columns by all sorts of outlandish methods and the second the padding of the subscription list. The first is resorted to for the purpose of creating the impression that the paper carries the advertising of the best people in the trade. The second is for the purpose of misleading the advertiser into the belief that the paper has a large paying subscription list.

How the advertising columns are padded is illustrated by an offer made *MOTOR AGE* by a concern which had recently made a contract with one of the automobile papers. The contract is as follows: The paper is to

receive \$750 worth of advertising, and guarantees to sell for the maker two wagons at \$1,800 apiece, or the advertiser is not to be asked to pay for the space. The maker made the same proposition to *MOTOR AGE*, and it was promptly rejected. It is not the duty, nor is it fair, for the people connected with a trade journal to become salesmen for some particular advertiser to the disadvantage of all others.

The padding of the subscription list is accomplished in various ways. One in which the trade will be interested is that of giving away a year's subscription with 50 cents worth of advertising. One of the automobile journals is at present using this method. Its annual subscription is alleged to be \$1. For 50 cents, however, it offers to insert a half-inch advertisement and send the paper to the advertiser for one year as a part of the bargain. By such methods as these are "the largest paid circulations" made up.

WEAK POINT OF INTAKE VALVES.

A few recent experiences on the road have served to call attention to the fact that a change is necessary in the construction of intake valves, or rather that part of the valve attachments adopted, by some designers, to hold the spring in position. This remark applies particularly to the vertical type of poppet valve but the same defect has been found in horizontal valves. Opinions vary as to the best method of securing the springs in position, some designers preferring pins, either round or square, others the nut and cotter. Both have points in their favor and some common faults. It is doubtful, however, whether the method of drilling or broaching the stem and then using a pin for securing the spring is as secure as that of using a locknut and keying it to prevent its becoming loose. Under the latter plan there is no drilling of the stem except for a small cotter or split pin and the nut carries the strains, whereas in the other method the strain bears on the stem at the point at which the hole is drilled for the pin, the latter being the means by which the strain is carried to the stem. Especially is the drilling of the stem unsafe when the stem is hardened, for vibration plays havoc with the valve. Many breakages have occurred during the season and the question has become serious. While it is a fact that both kinds have suffered the lock nut method of fastening is to be preferred from the fact that even though the split pin may break and drop out and the nut become loose, the trouble can be temporarily remedied by an extra piece of wire, while the broached stem breaks off at a point where the metal is thinnest and makes the valve useless.

FIRST AT THE POST.

1801—Oliver Evans built the first steam engine in Philadelphia.

1803—Principle of the storage battery discovered by Ritter.

1813—Hedley demonstrated by experiment, in England, that steam traction on rails was possible.

1816—Gear wheels first cut in England in a form of milling machine.

1820—Ampere developed the fundamental laws of electro-dynamics.

1821—Michael Faraday caused a wire carrying an electric current to rotate around a permanent magnet. This was the inception of an electric motor.

1823—The differential gear movement first invented for use in moving frames by Asa Arnold.

1824—Sturgeon discovered the electro magnet.

1827—First drop forging made at Harper's Ferry by J. H. Hall.

1828—Malleable iron discovered by Seth Boyd. First surface condenser made by John Ericsson.

1830—Crucible cast steel first made successfully at Cincinnati Steel Works. Some made prior to this, but unfit for use.

1832—So-called "Stephenson" link motion invented by W. T. James, New York.

1833—First electric motor made in this country by Saxton. Lenoir gas engine first brought to this country, was an atmospheric pressure engine.

1834—Prof. Henry made a practical working electric motor. The first compensating gear used about this time, similar to what is now used on motor vehicles.

1838—First two-cycle gas engine patented in England by William Barnett.

1840—First rotary valve for steam engine introduced by Shephard & Co., Buffalo, prior to Corliss valve.

1845—Compressed air first used to transmit power to a distance of 750 feet by Trigger in France.

1850—Seamless drawn tubes first made by American Tube Works, Boston.

1851—Rumkorff invented the jump spark coil.

1853—First steam motor carriage made in this country by J. K. Fisher, New York.

1859—First practical storage battery made in France by Gaston Plante. Petroleum discovered in United States. First automatic gear cutter by Warner & Whitney, Nashua, N. H.

1862—Beau de Rochas first formulated the four-cycle gas engine as afterward built by Professor Otto.

1876—First practical gas engine by Professor Otto in Germany.

1881—Faure type of storage battery first made, now almost exclusively used.

1887—First American chain-driven bicycle, the Victor, made its appearance.

1888—Gasoline first used in a gas engine by Van Duzen, of Cincinnati. First drop-frame ladies' bicycle.

The *Auto-Velo*, the great automobile and cycle paper of Paris, published, on the day of the finish of the Paris-Vienna automobile race, its regular edition of 225,000 papers after the finish of the race; issued an extra edition of 93,704 copies and later completed the day's issue with an edition of 132,561 copies giving the results of the Grand Prix cycle race, the total issued being 451,265 for the day. This paper is a daily and deals only with the two sports above mentioned. The great interest taken in them may be estimated from the extraordinary issue referred to.

COMPRESSION and COMBUSTION

Useful Suggestions Relating to These Points in Gasoline Motor Design

One of the most important considerations in designing a gasoline motor is the amount of compression to be used, or in other words the proper proportionate size of the combustion chamber in terms of the piston displacement. That is to say, if we have to design a motor, of say 4 inches bore and 6 inches stroke, the first thing to do is to decide on the amount of clearance at the end of the cylinder for the charge to occupy after compression. If this chamber could be made as a continuance of the cylinder bore, it would become an easy matter to determine the required clearance. It would simply be some fraction of the total stroke of the piston. For instance if a compression of three atmospheres were desired the clearance would be in terms of the piston stroke: $6 \div (3-1) = 6.2 = 3$ inches as the length of the cylinder extension beyond the extreme outward travel of the piston head. If four atmospheres compression were desired, the required length for the cylinder extension would be: $6 \div (4-1) = 6.3 = 2$ inches. But as the general construction of the combustion or explosion chamber deviates widely from a plain section or length of a cylinder, as just exemplified, being sometimes flat oval, elliptical, semi-spherical, ovoidal, and even rectangular in cross section, and sometimes even combinations of the above, some other method must be used to calculate the clearance.

To do this, then, we must find the contents of the combustion chamber in cubic inches, and apportion this between the valve chamber and the clearance proper, which lies directly behind the piston head. It will be found to be no small task in designing a motor, having the usual and most practical type of valve gearing, to get the combustion space down to the required dimensions and still keep it free from bends or contracted ports or passages between the cylinder and the valve chamber or chambers. Many attempts have been made to obviate this difficulty, by going back to the primitive form of combination chamber as previously described—that is, simply a straight extension of the cylinder in the rear, and back of the extreme travel of the piston head. In this manner both the inlet and exhaust valves can be placed in the cylinder head and an ideal combustion chamber can be secured. It has, however, serious disadvantages, in the fact that it not only greatly lengthens the motor, but requires a more complicated valve operating mechanism than if the valve chamber be placed at the side of the cylinder as is usually done.

Taking the case of our 4x6 motor again, if we want to find the clearance in cubic inches required for 3 atmospheres compression, we must multiply the result obtained in the example before given for the straight clearance for 3 atmospheres; that is 3 inches, by the area of the cylinder, to get the required cubic contents of the combustion chamber. As the diameter of the cylinder is 4 inches, the superficial area will be 12.56 square inches. This multiplied by three, the length of the straight clearance, will give 37.68 cubic

inches as the required capacity of the combustion chamber.

In a similar manner, to get the cubic contents for the combustion chamber when 4 atmospheres compression are required, as the straight clearance obtained for this case in the first example, was 2 inches, then 12.56 multiplied by two will give 25.12 cubic inches as the desired capacity of the combustion chamber.

Many mechanics estimate the pressure resulting from the compression with a given number of atmospheres as the number of atmospheres, multiplied by the atmospheric pressure, which is taken as 14.7 pounds per square inch, at sea level. This is erroneous and often leads to grievous mistakes in motor design, generally giving too much compression, resulting in premature ignition, commonly known as "back firing."

This method of calculation would be true if the air, after compression to the desired number of atmospheres, were stored in a reservoir and allowed to cool, but under no other conditions would the rule hold good. As energy in the form of power must be used to compress the air to the desired pressure, so energy in the form of latent or stored heat is given up by the air during the operation of compression. This heat increases the pressure resulting from the compression in proportion to the amount of compression in atmospheres. As this increase of pressure due to the heat generated, can not be calculated by the use of ordinary arithmetic or algebra, but involves the use of logarithms, a table of the properties of compressed air is here given. The temperatures resulting from the varying compressions are given; also the gauge pressure of the air after cooling, and the isothermal or heat pressure resulting from the compression.

If it is desired to ascertain the compression in atmospheres of an existing motor, whose combustion chamber is of such character than it can not be readily calculated, it may be found by filling the clearance space with water, and after removing the water, ascertaining its weight in ounces, and multiplying the result by 1.72. This will give the capacity of the combustion chamber

PROPERTIES OF COMPRESSED AIR.			
COMPRESSION IN ATMOSPHERES.	TEMPERATURE IN DEGS. FAHRENHEIT.	GAUGE PRESSURES.*	
		AFTER COOLING.	ISOTHERMAL.
1.00	60	0	0
1.68	145	10	15.73
2.02	178	15	24.69
2.36	207	20	34.25
2.70	234	25	44.39
3.04	252	30	55.98
3.38	281	35	66.15
3.72	302	40	78.76
4.06	321	45	89.82
4.40	339	50	102.31
4.74	357	55	115.10
5.08	375	60	128.33

* IN POUNDS PER SQ. INCH.

in cubic inches. The compression in atmospheres may then be found by dividing the cubic contents of the piston displacement by the cubic contents of the combustion chamber in cubic inches, and adding one to the result. After obtaining this result, the temperature and gauge or isothermal pressure can be closely approximated by reference to the table.

In air cooled motors the temperature and pressure resulting from the compression will approach closely the figures given in the table.

This is also true of water cooled motors using thermal-syphon or natural circulation system, but for motors using a pump and radiating tubes or coils will be considerably less in value.

The following table of the thermo-dynamic properties of gasoline and air may be of some interest, in view of the fact that information on this subject is sparse and most of that only theoretical or empirical deductions.

This table gives the explosive force in pounds per square inch of mixtures of gasoline vapor and air, varying from 1 to 13 down to 1 to 4; also the lapse of time between the point of ignition and the highest pressure in pounds per square inch attained by the expanding charge of mixture. The pressure 0.2 seconds after the highest pressure has been attained is also given. The tests from which the results given in the second, third and fourth columns in this table were obtained, were made with a charge of mixture at atmospheric pressure, so as to more accurately note the results, as the mixture takes much longer after ignition to attain its highest pressure, and is slower also in expanding.

There are no more heat units, and consequently no more foot pounds of work in a mixture of gasoline and air, under 5 atmospheres or more than under 1 atmosphere compression. The higher the compression, the quicker the ignition and consequent expansion of the burning gases take place, thereby causing them to attain greater initial pressure, on account of the lesser heat losses through the cylinder walls. As it takes a certain length of time to dissipate or radiate a certain amount of heat, it follows as a natural sequence, that the shorter the time occupied by the burning charge of mixture to attain its highest pressure or complete its combustion, the smaller the heat losses by dissipation or radiation. The principal gain by the use of high compression is secured from the fact that the motor may be run at a greater number of revolutions per minute, thus having more working strokes or impulses than if using a lower degree of compression and consequently slower speed. Columns 5, 6 and 7 in the table give the explosive force in pounds per square inch for degrees of compression from 3 to 5 atmos-

THERMO-DYNAMIC PROPERTIES OF GASOLINE AND AIR.								
MIXTURE OF GASOLINE VAPOR AND AIR.	AT ATMOSPHERIC PRESSURE.			INITIAL EXPLOSIVE			TEMPERATURE	
	TIME IN SECONDS BETWEEN IGNITION AND HIGHEST PRESSURE.	IN POUNDS PER SQ. INCH.		* FORCE			OF	
		* INITIAL EXPLOSIVE FORCE.	PRESSURE 0.2 SECONDS AFTER HIGHEST PRESSURE.	IN POUNDS PER SQ. INCH.			COMBUSTION	
				COMPRESSION IN ATMOSPHERES.			IN DEGREES FAHRENHEIT.	
				3	4	5	ACTUAL.	THEORETICAL.
1 to 13	0.28	52	43	156	208	260	1857	3542
1 to 11	0.18	61	45	183	244	305	2196	4010
1 to 9	0.13	78	47	234	312	390	2803	4806
1 to 7	0.07	87	55	261	348	435	3119	6001
1 to 5	0.05	90	57	270	360	450	3226	6854
1 to 4	0.07	80	63	240	320	400	2965	5517

* GAUGE PRESSURE.

pheres, and with varying mixtures from 1 to 13 to 1 to 4. The tests from which these results were obtained were made in a plain cast iron cylinder without flanges or radiating ribs so as to obtain the best results, with regard to the efficiency of the mixture. Flanged or ribbed air cooled motors will approach the figures given in the table for the initial explosive force for the varying compressions, very closely, while thermal-syphon water cooled motors will come within about 20 per cent of these results, and pump and radiating coil cooled motors will come within about 30 per cent. While it appears at the first glance that the proper thing to do to get the greatest efficiency from a gas or gasoline motor, would be to let it run as hot as possible, experience has shown that the repair bill of the hot motor will more than offset its efficiency over the thoroughly cooled water jacketed motor, with pump and radiating coils. The last two columns in the table give the temperature of the burning gases, the first of the two columns the actual temperature with the accompanying mixture of gasoline and air, and the second the theoretical temperatures, or temperature to which the burning mixture should attain, if there were no heat losses.

Tug of War Between Horses and Motor

An interesting contest took place recently between a team of three horses, owned by Cole's Cartage Co., of 255 Michigan street, Chicago, and one of the buses owned by the Chicago Motor Vehicle Co. Mr. Keith, of the latter, had been talking with Mr. Cole relative to the use of automobiles and the latter had offered to back up his opinion that his three horses could do more work than the motor. The result was that the horses were hitched to the bus and on a given signal both they and the motor were started. There was a moment of uncertainty and then the bus pulled the horses backward. A second and third trial were made, the horses in each of these cases being allowed a good start so as to set the bus in motion backward before the power of the bus was applied. The operator of the bus had no difficulty in stopping the horses at will and pulling them backward.

Evolution of Automobile Design as Observed in Supply Trade

BY PERCY J. DASEY.

The demand for motors is for the multiple cylinder, made popular by the French and lately brought more prominently into demand by a desire for great power occupying little space. In no form can that end be reached more successfully than by the adoption of the four cylinder upright engine and a number of manufacturers have turned their attention to that type with good results not only for themselves but to the trade. They have made foreign competition less serious in a sense and have paved the way for American manufacturers to produce vehicles of as high power and speed as the French and unquestionably at greatly reduced cost and equal quality. Now that the country buyer chooses the multiple cylinder motor and a running gear with which a "touring car" or "tonneau" can be constructed, the illustration of what results attained by the liberal publicity given the popular cars by the trade press is complete.

Carbureters seem to have no place to call their own. There is none with sufficient merit to outshine competitive makes. Because of this the internal combustion motor is still condemned by some who are not sufficiently educated in their use and care to understand them and to appreciate the important part the carbureter plays. One thing, however, is apparent and that is that the float regulated carbureter is gaining popularity because of its simplicity. The gravity feed device will continue to be used on engines which run at constant speed because when once set they need little attention so far as mixture is concerned; but with variable speed motors gravity feed will not suffice. The float regulated carbureter comes nearer than any other to the perfect device, despite the fact that it demands a more minute preliminary understanding of conditions and adjustment than does the common form of mixing valve.

Conditions make it so. The fact that the oil is fed to the cylinders by the air drawn into them at each suction stroke, and is drawn exclusively by air friction, eliminates all possibility of variation of mixture if care be taken to regulate the nozzle according to the requirements of the stroke and bore. If this is accomplished by the nozzle alone it takes a little more time, but produces a result which never varies; hence offers no chance for an inexperienced operator to get into difficulty. That in itself is a good feature, but many persons interested in gasoline engines lack the patience necessary to fit such a carbureter, whereas, if they did excellent results would accrue. Carbureters with lever regulation attain the same results in the end, but need just as much regulation and constant adjustment on account of the shifting of the lever controls under varying conditions. When the action is thoroughly understood and the manipulation of the devices is brought to a fine point a perfect

mixture is not difficult of attainment, and is usually the last thing looked to in case of stoppage.

The float which regulates the quantity of oil admitted into the reservoir maintains practically the same level at all times regardless of the speed at which the engine is running because of the inlet into the float chamber being larger than the outlet into the mixing chamber. As the piston sucks in a fresh charge of air the friction caused by the air passing the nozzle draws oil from it, the quantity varying according to the size of the orifice in the nozzle and the size of the opening through which the air passes to the engine. In experimenting it may be found that a nozzle of a given size will not pass sufficient oil, when the air intake to the carbureter is wide open, to form an explosive charge, but that when the hand is placed partially over the air intake the added suction on the nozzle will draw sufficient oil. The charge is obtained, however, at the expense of quantity, hence the engine is limited in its speed owing to the fact that it cannot obtain enough air and vapor through the small opening to fill the cylinder more rapidly. If the hand is removed the speed will perceptibly increase so long as there is a combustible charge, but soon drops owing to the mixture again becoming too light. Take the same size air intake and replace the small nozzle with a larger one and the result will be an improvement, inasmuch as, with the same air friction, a greater quantity of oil will be drawn into the engine, producing a richer mixture.

The increase in the size of the nozzle can be carried too far so that the result will be a soggy, slow combustion, in which the power is made ineffective. This will also cover the spark points with carbon and perhaps cause a short circuit across the face of the insulator. The correct mixture can be determined by the sound of the exhaust, the report being sharp and distinct. When the vapor is too rich it can be noticed instantly, not only from the sound but by the heavy black smoke or unconsumed carbon expelled from the muffler.

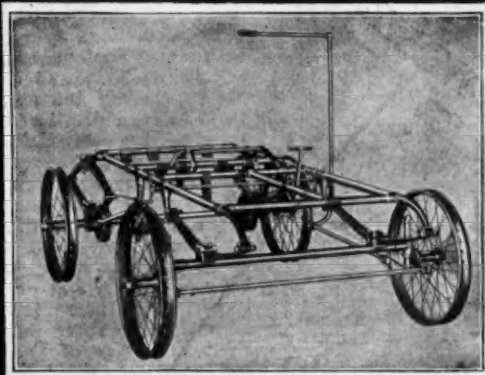
Regulation is, after all, not difficult when once understood, but in securing the right mixture it is well to remember not to do so at the expense of quantity, for unless the cylinder can fill itself at each stroke its power is reduced.

Throttling the mixture to decrease speed is resorted to by many makers, but many times the throttle is but half completed—that is, applied to the pipe leading into the engine, with no attention paid to the air intake whatever. As a matter of fact, a corresponding reduction in the air supply is just as essential as the reduction of the oil to retain the same density of mixture. This is because with the reduced quantity of air passing through the opening around the nozzle the friction is reduced, and consequently less oil is drawn. If the air intake were throttled in the same ratio as the vapor outlet, then an added suction would be provided on the nozzle, which would still draw proportionately the required quantity of oil, hence the mixture would not alter to any appreciable extent. Of course, it would be impossible to so regulate the vapor and air so as to maintain the quality exactly at all times, but the plan above outlined is the nearest approach to it. What is needed is more expert attention to the production of carbureters.

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H. B. Shattuck & Son, 239 Columbus Ave., Boston, Mass.	Manufacturers' Co., 26 Fremont St., San Francisco, Cal.
Banker Bros. Co., East End, Pittsburgh, Pa.	A. F. Chase & Co., 215 Third St., Minneapolis, Minn.
Oldsmobile Co., 411 Euclid Ave., Cleveland, O.	Oldsmobile Co., 728 National Ave., Milwaukee, Wis.
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Fisher Automobile Co., Indianapolis, Ind.	F. E. Gilbert, Jacksonville, Fla.
Olds Gasoline Engine Works, Omaha, Neb.	Texas Imp. & Mach. Co., Dallas, Tex.
W. C. Jaynes Automobile Co., 873 Main St., Buffalo, N. Y.	Abbott Cycle Co., New Orleans, La.
F. L. C. Martin Co., Plainfield, N. J.	C. H. Johnson, Atlanta.
Autovheicle Co., Newark, N. J.	Sutcliffe & Co., Louisville, Ky.
F. W. Stockbridge, Paterson, N. J.	Brown-Thompson & Co., Hartford, Conn.
Day Automobile Co., St. Louis and Kansas City, Mo.	Mason's Carriage Works, Davenport, Iowa.
	Adams & Hart, Grand Rapids, Mich.
	Kline Cycle & Auto Co., Harrisburg, Pa.

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Chicago, Ill.—Editor MOTOR AGE: How can I figure the size of the compression space in a gasoline motor with dome-shaped cylinder heads and including the capacity of the valve chamber? Is the pressure ascertained by turning the engine over by hand slowly or when it is running at its normal speed? Yours, etc., M. Cox.

The information is practically furnished in an article on page 10 of this issue, in which tables of properties of compressed air, and the thermo-dynamic properties of gasoline and air, and full instructions how to find compression in atmospheres, cubic contents, adiabatic and isothermal pressures is furnished.

Turning Up Piston Rings

Oshkosh, Wis.—Editor MOTOR AGE: I have read a great many articles on the making of piston rings for gasoline motors, but not finding any of the methods described to produce a good fitting ring, I venture to give the readers of MOTOR AGE my way of making them. When I want a good fit and one that will hold the charge under compression properly, I turn the rings a good deal larger than necessary, then cut a piece out, and spring the ring into a chuck or collar, bored about 1-32 of an inch larger than the bore of the cylinder, clamp to face plate of lathe and then turn off on the outside to the exact bore of the cylinder; the result is that the rings will bear all around in the cylinder.—Yours, etc., Machinist.

MOTOR AGE described, over a year ago, in a series of articles entitled "The Construction of a Gasoline Motor," an even better method than the one described above. For the benefit of those who may have overlooked it or not read the MOTOR AGE at that time it is reproduced. A pattern should be made from which to cast a blank cylinder or sleeve with two projecting slotted lugs on one end to bolt same to face plate of lathe. This blank should first be turned off outside to the required diameter, making it, of course, sufficiently larger to allow for the cut in the rings, after cutting from the blank. The blank should then be set over eccentric sufficiently to allow the thick side of the rings to be twice the thickness of the thin side after turning. The inside of the blank can then be bored out, and the rings cut off to the exact thickness required with a good sharp cutting off tool. A mandril or arbor should be made with two cast iron washers or collars to fit on it, one fastened to the mandril and the other loose, with lock nut on mandril with which to tighten up the loose collar. After the rings have been sawed open and a piece cut out the required length, they can be placed in a collar or ring about 1-32 to 3-64 of an inch larger than the cylinder bore, and slipped on to the mandril

one at a time of course, with the loose collar and nut off the same. The loose collar and nut can then be put on the mandril, the ring clamped tightly between the two collars, the mandril put in the lathe and the ring turned off, without leaving any fins or having to cut the ring off afterward as is done in many cases. This is the only way in which a perfectly true ring can be made.

Balancing Fly Wheel and Moving Parts

Baraboo, Wis., July 11.—Editor MOTOR AGE: I have been doing some automobile business this summer in selling machines and also in building. I am handling the Oldsmobile and find them all the company claims them to be or do. I am at present interested in the perfection of my own machine which is very satisfactory. My power is gasoline engine with cylinder $5\frac{1}{4} \times 6\frac{1}{2}$, flywheel 22 inches diameter and weight 150 pounds. The machine weighs when ready to run, 1,100 pounds and can climb any hill and run up to 25 miles an hour but there is a little more vibration than I think there ought to be. I write you for information as to the correct way to balance this style of engine. Does the flywheel have to be perfectly balanced itself before being put on the shaft? How much counter weight must there be put on the shaft each side of the connecting rod to balance the piston so there will be no shake, or up and down motion when engine is running medium fast?—Yours, etc., C. H. Farnum.

The flywheel should be as accurately balanced as possible before mounting on the shaft. In the first place set the crank shaft on two perfectly straight parallel surfaces, one such surface under each end; then connect the connecting rod to the crank and turn the shaft until the crank is parallel with the floor or in other words at right angles to a perpendicular line drawn through the center of the shaft. Place a scale under the crank pin or use a hanging scale attached to some rigid support above the pin and connect it to the crank pin by a wire or cord sufficiently strong to carry the weight. Before taking the weight, however, rest the end of the connecting rod that attaches to the piston on a flat smooth surface. Then find the weight of the parts according to the scale and apply the same amount at the same distance from the shaft on the opposite side of the shaft and you will have a fairly evenly balanced motor. It is impossible to obtain a perfect balance but the above method will assist greatly in reducing the vibration.

Gasoline for Use in Australia

Melbourne, N. S. W.,—Editor MOTOR AGE: I am in doubt whether 76 degree oil is absolutely necessary for gasoline motors, or whether 74 stove gasoline, would give satisfactory results. The Colonial Oil Co. informs me that it can supply the latter in any quantity at from 45 to 50 cents per gallon. The company has not yet stocked 76 oil but would do so if necessary. If 74 oil would give satisfactory results it would reduce the price of operation tremendously as there is virtually no duty on 74 degree oil here now. Will you kindly quote in your columns the difference in the price of 76 and 74 oil in the United States, and state whether high test gasoline, say 84 to 86, is too volatile for motor use. I have written to an American house offering to purchase one of its machines on certain conditions, and by the time I receive the answer I hope to have the information asked for through MOTOR AGE.

I notice a few new gasoline machines here lately, all of English or French make: I have not seen one of American make. Unfortunately American firms seem to think that people here ought to send the purchase price of machines in full with the order. So far as I am concerned I am not willing to do anything of the sort,

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Address, KELLY HANDLE BAR CO., Cleveland, O., U. S. A.

# RECORD OF DARRACQ CARS.

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## Season of 1901.

Forty-seven firsts out of fifty-two races.  
Winner of Gallion Hill trial.

## Season of 1902.

- FOREIGN:** Sports at Nice, first five cars all Darracqs.  
Paris to Arra and return, Darracq won in both classes, distance 560 miles.  
Turbie Hill Contest, 20 H. P. Darracq wins, beating 40 H. P. Mercedes.  
Paris-Vienna, 2nd, 3rd and 4th were Darracqs.
- AT HOME:** L. I. Endurance Test, 3 Cars entered, all finished with clean record, except they all went too fast.  
A. C. A. Endurance Test, 2 Cars entered, made cleanest record over all cars.

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## BUY A DARRACQ.

- BECAUSE:** 1. You can get it all at once.  
2. It has record for speed and endurance.  
3. It is not an experiment.  
4. It has simplest and most reliable motor on the market.

Three sizes in stock, 9, 12 and 16 H. P.  
Single or double cylinder.

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## American Darracq Automobile Co

2 Blocks from 9th Ave.  
L., at 14th Street.

652 Hudson Street, NEW YORK.

though I am willing to send a reasonable deposit and pay cash on receipt of the machine.—Yours, etc., B. J. PRINCE.

Aside from the fact that retailers of oil do not take as much care about excluding impurities from the low as from the higher grade oils there should be no difficulty in using even lower grades than this correspondent mentions. It is common practice among American automobilists to stop at way-side stores and buy just common "gasoline." It may be 76 but is far more likely to be 68 or there about. The lower the grade the greater the heat and consequently the greater power the oil contains. A little more trouble with foul plugs and cylinder will result, however, unless great care is taken in regulating the mixture. The high grade oils mentioned are not suitable for gasoline engines, and it would be folly to attempt to use them. The average price of gasoline is about 15 cents per gallon in 5-gallon lots. The difference in cost of 74 and 76 is infinitesimal.

### The Kind of Wheels to Use

Elmwood, Ill., July 10.—Editor MOTOR AGE: I have made up my mind to buy an automobile and am undecided as to the kind of wheels to have. Which are the strongest, the wood or the tubular wheels?—Yours, etc., H. V. LOTT.

The necessities in the matter of strength depend on the weight of wheels used, the load they are expected to carry and the roads over which the vehicle is to be operated. For heavy loads there is no question as to the strength of either the tubular or wood artillery wheels if the correct size in proportion to the weight to be carried is used. Wire wheels are largely used with satisfactory results, on light carriages. All three types are serviceable in their respective fields.

### For the Education of Horses

New York, July 10.—Julian A. Ripley's article in Harper's Weekly of July 5, giving his experiences with his school in the public square of Hempstead, L. I., whose object has been to accustom the horse to the automobile, so occupied the attention of the A. C. A. governors at their meeting today that they had little time left for the consideration of other matters. On the reasonable theory that the greater part of the prejudice the farmers as a class have against the automobile arises from its frightening their horses, and that this removed the farmers will be the allies of the automobilists through the good-road crusade rather than their enemies through the board proceeded to take prompt action. It ordered a letter sent to all the members, urging them to open similar schools and giving them full particulars of the methods of instruction to be followed, based on the experiences of Mr. Ripley and of President Shattuck, who runs such a school at Lenox, Mass., with effective results. All the clubs in the country will also receive a suggestion that they urge their members to take similar action.

Jefferson Seligman, a governor, announced his intention to establish such a school at once at West End, Long Branch.

### Interesting Letter From Fournier

In a letter to a friend in New York, Henri Fournier tells of an automobile which he is building for an attack on his own mile record of 51 4-5 seconds. He says that when he comes to America, in November, he will be prepared to travel a very fast mile over the Coney Island boulevard, provided he can secure the necessary permission. Fournier says that in the Paris-Vienna race he had traveled 300 kilometers without being passed by a single chauffeur, when a punctured tire and a break in the machinery brought him to a stop. He was unable

to remedy the trouble in time to continue with any kind of a chance of winning.

Fournier says the good work of the carriages in the long race was surprising, and the time in general made on the journey, he thinks, shows the automobile to have reached an almost perfect state. He writes of the famine in automobiles, saying that manufacturers are far behind in orders and cannot make immediate deliveries, not even with the inducement of extra high prices. W. K. Vanderbilt, Jr., he says, is touring Switzerland, but expects to return to America in a short time. Fournier asks to be remembered to his many friends in this country and hopes soon to greet them in person.

### Automobiles in the Public Service

CARTHAGE, Mo.—Carthage is to have the first free rural mail delivery by automobile in the United States, unless Postmaster Tuttle is greatly mistaken in his information. One day next week one of the rural carriers is to go out of Carthage in an automobile with H. C. Griep to deliver mail matter fresh to the up-to-date farmers of Jasper county. Mr. Griep has been engaged for the trial run, and will be more than repaid for his trouble by the free advertising he should get as the pioneer automobilist of the country. As soon as the test is made Postmaster Tuttle will forward full data and details of the experiment to the postal department at Washington, with the purpose of some day getting the auto generally introduced throughout the United States for rural delivery purposes.

MARION, IND.—For some time Marion men have considered the establishment of an automobile route from this city to Huntington. For years an old stage wagon has run from here to Banquo, one of the principal towns on the road to Huntington. While the traffic on the stage route has never been large, it has always been a paying investment. Of late the business of the line has been steadily increasing, as Banquo is becoming a prosperous little town. The distance from Marion to Huntington is about 30 miles. C. A. Kurtz, of Fort Wayne, has been in Marion conferring with local men interested in the enterprise. The autos contemplated will carry fifty persons and will be operated by gasoline. Baggage wagons also will be operated.

LONDON, ENGLAND.—The London Road Car Co., the second largest of the London street omnibus companies, has ordered ten Fischer electro-gasoline buses to be built at Hoboken, N. J., at a cost of \$2,500 each. The new buses are to be delivered in 3 months. They will have a speed of 12 miles per hour and a carrying capacity of thirty passengers, as against twenty-six passengers carried by the horse buses. The Fischer buses will travel 100 miles per day, as against 56 by the horse carriages. The cost of running each bus will be 2½ cents per mile.

TERRE HAUTE, IND.—Articles of incorporation of the Wabash Transportation Co. have been filed in the office of the secretary of state. It is capitalized at \$12,000. Its purpose is to operate an automobile line in, to and from Terre Haute. Its incorporators are W. D. Van Horn, P. K. Reinbold, Edward E. Evinger, Grant G. Tubbs, Terre Haute capitalists, and Richard Potter, of Clinton; Barnabas Navin, of Brazil, and James Henan, of Linton.

JERSEY CITY, N. J.—The local union of Amalgamated Sheet Metal Workers petitioned the Hudson freeholders to include an item of \$100,000 in the next tax budget for the establishment and maintenance of a passenger automobile line on the Hudson boulevard. The request was referred to the boulevard commissioners.

GUTHRIE, O. T.—The Consolidated Rapid Transit Co., chartered to do business in Oklahoma, expects to begin operating a passenger system of automobiles in Guthrie about the 1st of August. Six automobiles have been ordered and are expected here within two weeks.

BATTLE CREEK, MICH.—The auto coach ordered by the Morgan Park Co. to take the place of street cars between the city and the park has arrived and will be put into service soon. The coach is a big one with a seating capacity of nine people beside the driver.

DANIELSON, CONN.—Nelson A. Jordan has opened a bicycle repair shop in the basement of Music Hall block.

COLORADO SPRINGS, COLO.—Belmore & Ford have sold their bicycle business to J. H. Collins. Belmore & Ford will continue the manufacture of gasoline engines and other patents in another location, much larger quarters having been secured.

HARTFORD, CONN.—William E. Kibbe, bicycle dealer, has leased the store 1124 Main street for an automobile station in connection with the bicycle business.





So long a time has elapsed since the introduction of the suit of George B. Selden, of Syracuse, against the Winton company that many people in the trade have probably forgotten all about it; perhaps even never heard of it. The case has been going along quietly just the same, and there is reason for believing that there will be "something doing" of great interest to the trade in a few days.

The Electric Vehicle Co., which controls various patents issued to Selden, declines at this time to furnish details of the developments, but gentlemen connected with the company do not deny that something of considerable interest will soon be heard from Mr. Selden. They simply intimate that the matter is in a condition which warrants the withholding of details for 2 or 3 weeks. Their conversation leads to the inference that the patent office, rather than the courts, is involved in the developments.

The Selden patent covers the combination with a road locomotive with suitable running gear, including a propelling wheel and steering mechanism, of a liquid hydro-carbon gas engine of the compression type, comprising one or more power cylinders, a power shaft, a suitable fuel receptacle, and an intermediate clutch or disconnecting device and a suitable body adaptable to the conveyance of passengers or goods. There are six claims, commencing with the one cited, and in each following claim one of the combinations is left out, in the order in which they are given. The patent was applied for May 8, 1879, and allowed November 5, 1895, after being in the patent office over 14 years.

#### NO MORE WINTONS THIS YEAR

**Company Obligated to Decline New Orders—New Peerless Model Coming—Hansen Company Making Deliveries**

Cleveland, Ohio, July 14.—The Winton company has announced to its agents and sales offices that no more orders can be taken care of for 1902 delivery. That this announcement has caused bitter disappointment with many who expected to become owners this year is evidenced by the fact that already unheard-of bonuses are being offered for new or second-hand cars. A. B. Cleveland, of Unionville, who has used his machine for more than 2,000 miles and who is now going on a vacation, sold it the other day for \$2,500 cash. At New York A. J. Stone, after making a long tour, sold his machine for a considerable bonus and has placed his order for another for next year's delivery. Branches in several cities report that anxious would-be customers are offering as high as \$750 and \$1,000 bonus for immediate delivery, but, of course, they might as well offer a million, since there are no cars available.

At the old Winton factory they are rounding up things preparatory to moving to the mammoth establishment now nearing completion. There will be few changes in

the 1903 touring car; nothing radical; simply a few refinements. As Mr. Winton puts it: "What's the use of making expensive changes when you can't fill orders for what you have. The touring car is the most successful machine we have ever built, and there is little, if any, room for improvement."

The F. B. Stearns company is another which is finding it more than difficult to fill orders. The possible output for this season is practically sold up, and contracts are being closed with agents for 1903 deliveries.

The Peerless Mfg. Co. is another which is preparing for 1903. Superintendent Moorers has a new model under way. It will have the same general appearance as the present car, but there will be several improvements, notably in the method of transmission. The Peerless people are now turning them out at the rate of four a week, and they could sell more could they build them.

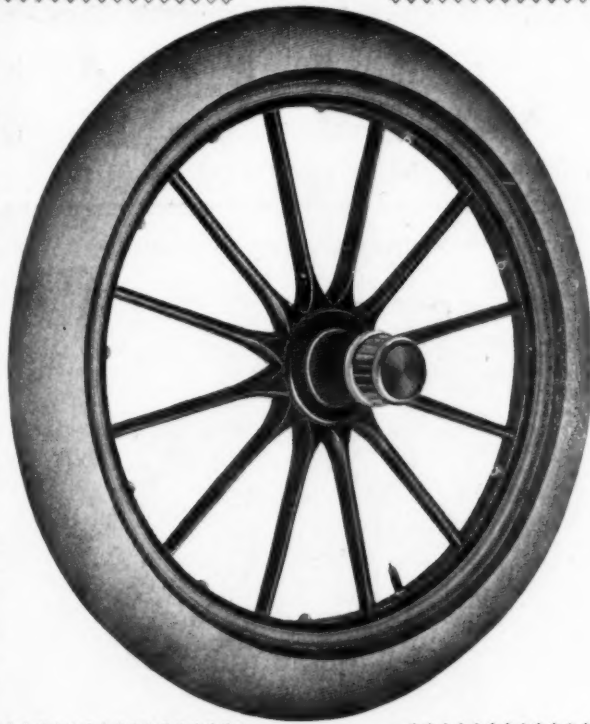
The Hansen Automobile Co. has about thirty machines coming through, and is now making deliveries. Charles M. Hall has been appointed agent in Toledo, and machine has been shipped to him. Arrangements are being made for agents in several other cities. The company's handsome little car is illustrated in its advertisement on another page of this issue.

The Krastin Automobile Co., previously mentioned in these columns, is making preparations to come to the front with four models, a 6 horse-power runabout, a 12 horsepower touring car, an 18 horsepower car for four people and a 24 horsepower car for six people. Samples have been completed and thoroughly tested, and stock is now being made up. The Krastin company, at a recent meeting, voted to make an immediate expenditure of \$10,000 for new machinery and improvements to the shop. During the winter it is the intention to erect a large factory.

#### THE PROGRESS OF BRECHT

**Complete Automobiles Are Now Produced and the Parts Business Is Immense**

The Brecht Automobile Co., St. Louis, Mo., is still increasing its capacity for the manufacture of parts and complete machines. The manufacture of parts brought such a volume of business last season that the company increased its facilities at that time and now finds it necessary to repeat the operation. As an addition to the running gears and other parts made in the past the company has taken up the manufacture of complete machines. A St. Louis correspondent says: "The improvements and additions the Brecht people made to their equipment are, I believe, greater, more varied and more valuable than can be shown by any other manufacturer in the United States. Their business in parts is confined nearly altogether to the makers of high



*Midgley  
Tubular  
Steel  
Wheels.*

*Artillery Pattern.*

When in the market write the

*Midgley Manufacturing Co.  
Columbus, Ohio.*

K. Franklin Peterson,  
165 Lake Street, Chicago,  
Western Sales Office.

**"AMERICA'S LEADING AUTOMOBILE"**

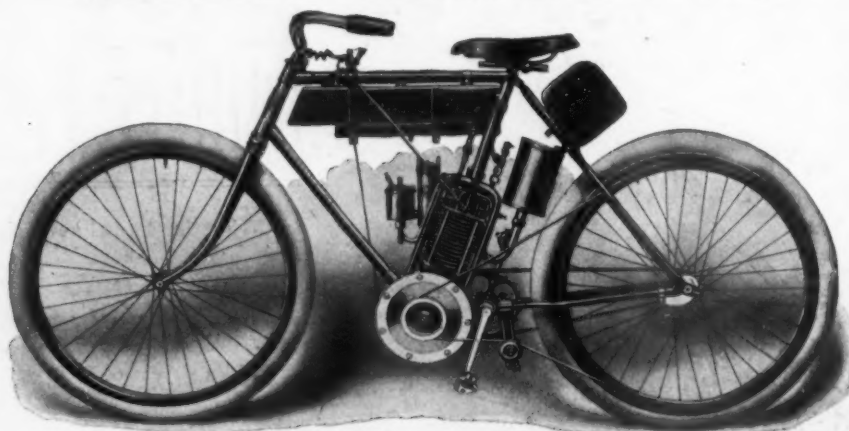
*Searchmont*

**FOURNIER - SEARCHMONT AUTOMOBILE CO.  
1238 ORKNEY STREET, - PHILADELPHIA, U. S. A.**

# ONE ONLY!

.....AND THAT ONE THE WINNER.....

It was not necessary for the makers to enter more than a single



## HOLLEY MOTOR BICYCLE

In the Boston-New York endurance test. That one finished first—well ahead of competitors represented by from one to ten machines. There could be no better proof of our confidence in our motor bicycle. We are ready to make prompt delivery. Our catalogue may be had for the asking, and we are ready to refer you to satisfied purchasers. \* \* \*

Dealers will confer a favor on the Company by calling on or corresponding with any of the following of our agents, who have our 1902 Model in their possession:

P. J. Dasey Co., 19 La Salle St., Chicago, Ill.  
Campbell Cycle & Motor Co., New Haven, Conn.  
Jos. Holle, 20th and Folsom Sts., San Francisco, Cal.  
John D. Hagerty, Stroudsburg, Pa.  
Wm. E. Metzger, 254 Jefferson Ave., Detroit, Mich.  
Great Western Cycle Co., Minneapolis, Minn.  
Holbrook Hardware Co., Hamilton, Ohio.  
Howard A. Rhine & Co., 811 E St., N. W., Washington, D. C.  
Dow & Carter, Skowhegan, Me.  
E. O. Proctor, Ayer, Mass.  
L. J. Wyckoff, 484 Broad St., Newark, N. J.

Felix Joswich, Western and Dayton Aves., St. Paul, Minn.  
Mott & Bennett, East Orange, N. J.  
Newport News Cycle & Hardware Co., Newport News, Va.  
Harry Lillywhite & Son, Southampton, L. I.  
J. R. Punshon, Almene, Kan.  
J. C. & H. S. Starr, Decatur, Ill.  
Grant La Barre, Easton, Pa.  
J. F. Pulford, 804 Idaho St., Boise City, Idaho.  
Fred H. Parker, South Manchester, Conn.  
Howard A. French & Co., 304 W. Baltimore St., Baltimore, Md.

Original testimonial letters will be gladly furnished upon receipt of request, and we can also give any number of additional references.

## HOLLEY MOTOR COMPANY

19 HOLLEY AVENUE, - BRADFORD, PENNSYLVANIA

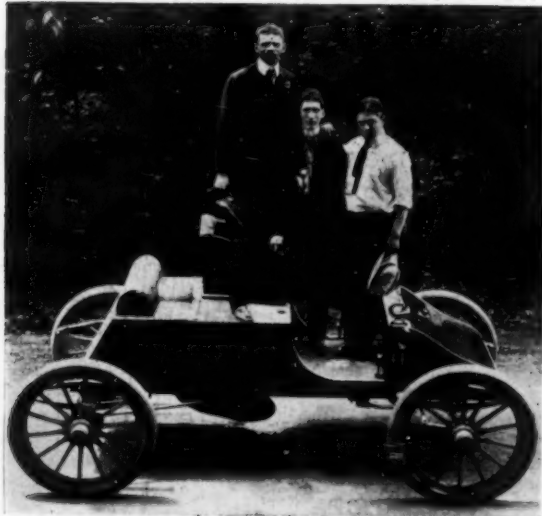


grade machines and those individuals who are willing to spend money for the best article of its kind in the trade. When they found that owners had some trouble in getting complete machines with their running gears they concluded to make a line of vehicles and have never for one minute let up making them. The Brecht plant is being added to every day, its working force increased and it is perfectly satisfied with the business."

#### RAMAPAUGH AND ITS DESIGNER

**Big Machine the Work of Locomotive Expert Who Built Automobile in 1868**

New York, July 10.—Charles A. Ball, a retired mechanical engineer, designer of the three big steam automobiles built at the Miami Cycle Works, Middletown, O., for himself, his son C. E. Ball, and Frank H. Ray, has received his machine. He showed it to a MOTOR AGE man today. First, as to the designer, an interesting and noteworthy personage. Mr. Ball was for many years head designer for the Grant Locomotive Works at Paterson, N. J. In this capacity he designed and ran on the trial trips over the road the first engine



The Howard Racer, Carrying L. D. Munger and Fred Dickinson.

on the New York elevated. Few inventors antedate him in automobile invention, either. In 1868 he built a steam-road wagon and ran it over the highways of Rockland county, N. Y., until the citizens made him cease because the machine frightened their horses. This automobile had five upright boilers and one engine. The vehicle is American made throughout, but its bonneted with the rear wheels, which were iron-tired wooden ones. It weighed 400 pounds and could only seat one person comfortably. It was of 3 horsepower and burned pea coal.

The design for the present machine was completed July 5, 1901. It cost \$10,000 to build each of the three machines. None will be for sale, and no company will be formed to manufacture them, though patents have been taken out. The "Ramapaugh," as Mr. Ball calls the vehicle, after the Indian name of the country where his "first offense" in automobile building was committed, has a 7-foot wheel base and 4-foot 9-inch gauge. The boiler is in the bonnet in front. It has 986 tubes,

which present a heating surface of 180 square feet. The engine is compound and has four horizontal cylinders. net and big tonneau seating six people give it a so-called "foreign" appearance. It is handsomely painted and fitted, has graceful lines and is altogether elegant to look at, with every indication of the \$10,000 spent in building it. The wheels are wooden and are shod with Dewes & Whitney double lock seamless solid tires. Mr. Ray's machine is 8 feet in length, and has three cross seats in the tonneau. Otherwise it is of the same pattern as Mr. Ball's.

#### HOWARD STEAM RACING CAR

**Reported to Have Made a Trial Trip of a Mile in 50 Seconds**

Another candidate for the decimal side of the mile-a-minute racing record is L. D. Munger, who is operating a steam car made by J. W. Howard of Trenton, N. J. The carriage is reported to have made a record of a mile in 50 seconds. This trial was made shortly after the completion of the car, and was done as a preliminary spin to ascertain what the car would do on an ordinary road. Mr. Munger intends, within the next 10 days to try and shatter the mile record, and incidentally to put the marvellous performance of M. Serpollet in the shade. From the cut it will be seen that the vehicle is built on the lines of a touring car, with long wheel base and low hung body. It is equipped with the well-known Munger non-collapsible tires, whose speed seems to be proved by some of the remarkable speed the car has attained.

#### CANADIAN DIRECTORS IN TROUBLE

**Charged With Paying Dividends Out of Capital and Other Irregularities**

Further trouble is in store for the directors of the Canada Cycle & Motor Co. who were recently subjected to severe criticism and threats of suit by the holders of common stock because of alleged mismanagement and the payment of dividends from moneys received from the sale of stock. Geo. W. Beddell has now commenced a suit on behalf of himself and all other stockholders except the defendants who are the directors of the concern. The action arises out of the absorption of the National Cycle and Automobile Co., which concern was acquired by the Canada Cycle & Motor Co. The plaintiffs will endeavor to set aside the sale, and also sue for certain moneys that were paid over in connection with the sale. The entire amount at stake is \$614,000. One of the claims is for the repayment to the said company of \$175,000 paid in dividends during 1901, as having been paid out of the capital of the defendant company.

#### SHANKS' LAND OFFICE BUSINESS !

**Will Combine Winton, Buckmobile and Moore Agencies in Prominent Cleveland Store**

Cleveland, Ohio, July 14.—Charles B. Shanks, of the Winton company, is to be general manager of a new retail company which will handle the Winton, Buckmobile and the product of the new Cleveland Automobile Company, as A. L. Moore's new company is termed. It is the intention to secure a large store in the heart of the city, where it will be possible to carry a large stock of all three machines, as well as store and repair vehicles for the large clientele which is certain to follow a concern having the prestige of the Winton-Shanks combination. Mr. Shanks will not sever his connection with the Winton company. The new concern will do a jobbing business with the Buckmobile, since, as has

been intimated in these columns, Mr. Shanks has been made western agent.

#### NEWS OF PACIFIC COAST

##### New Manufacturing Concern—Horsemen Suffered on National Holiday—North Coast Becoming Active

San Francisco, Cal., July 11.—W. L. Elliott, who conducts the Palace Hotel automobile stand, with stabling accommodations at the Sunset Automobile Co.'s agency, reports that D. Libby, proprietor of the Sunset agency, has filed incorporation papers in the name of the Libby Mfg. Co., whose lines of manufacture are to embrace kerosene motor automobiles and various machinery. Mr. Libby's principal associate is a Mr. Strong, a Pittsburg machinist who has been here some months at work in the Libby factory building after his own design a kerosene and distillate burner that is considered a triumph by Mr. Libby, and is to be adopted by the new Libby corporation in its automobile manufacture.

"It looks very much as if the north coast would soon rival San Francisco territory in the matter of horseless carriages," remarked Manager E. P. Brinegar, of the Locomobile Co. of the Pacific. We have just shipped to Seattle a Locomobile for the Cascade Laundry Co., a runabout for Mrs. Harold Preston and a top Locomobile for Dr. O. V. Lawson."

America's greatest of all anniversary days was fairly well celebrated. A large majority of the people went to the country hillsides, and to accommodate this exodus every available automobile wagonette was pressed into service. It was a veritable red-letter day for San Francisco operators, and not a mishap occurred. Quite different, indeed, from the record of yesterday's outings appertaining to people who still cling to the horse for recreation. The casualties were numerous. For instance, at a horsemen's run in the suburbs, in which eight riders took part, six of the hindmost soon withdrew, and remaining two are now under the care of surgeons. They are Joe Rose and Cal Drennan, anti-automobilists. Drennan was knocked senseless by having his horse stumble and fall upon him. His face and scalp were badly lacerated. Rose's horse also fell, causing Rose to turn a somersault and roll over several times when he struck the ground. His lacerations also are now wearing a surgeon's dressing.

#### Bicycles and Automobiles Gone Abroad

WASHINGTON, D. C., July 9.—The following is a list of bicycles, automobiles and parts for the week just ended from New York:

Antwerp—Bicycles, eleven packages, \$541; bicycle material, thirty-one packages, \$784.  
Azores—Bicycles and material, six packages, \$351.  
Amsterdam—Bicycle material, twenty-four packages, \$760.  
British Australia—Bicycles and material, seven packages, \$35.  
Miscellaneous—Bicycles and material, eight packages, \$545.  
Bremerhaven—Bicycle material, five packages, \$125.  
Brazil—Bicycles, one package, \$55.  
Bremen—Bicycles, two cases, \$40.  
British West Indies—Bicycles and material, twenty-eight cases, \$775.  
Central America—Bicycles, one package, \$15; bicycles and material, two packages, \$120.  
Copenhagen—Bicycle material, nine packages, \$423; bicycles, fifty-one packages, \$770.  
Dutch West Indies—Bicycles and material, seven packages, \$81; velocipedes, two packages, \$45.  
Egypt—Bicycles and material, twenty-seven packages, \$345.  
Glasgow—Bicycles, twenty crates, \$600.  
Genoa—Bicycle material, twenty-nine packages, \$965.  
Havre—Bicycles, seventy-six cases, \$951; bicycle material, sixty cases, \$1,701.  
Hamburg—Bicycles, four packages, \$125; bicycle material, eight packages, \$210.  
Liverpool—Bicycles, ninety-six packages, \$1,465; bicycle material, eighteen packages, \$808.

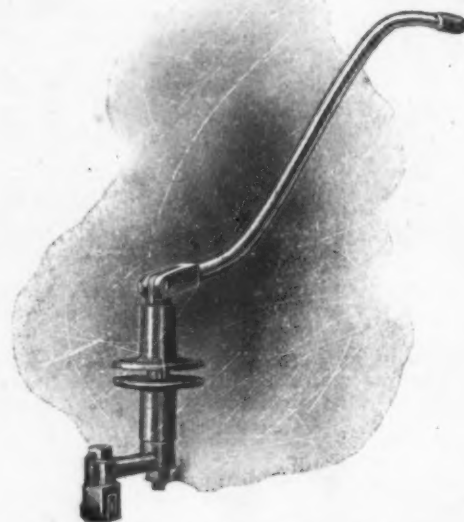
London—Bicycles and material, seven packages, \$360.  
Milan—Bicycle, one, \$40.  
Malta—Bicycle material, one case, \$100.  
New Zealand—Bicycles and material, 173 cases, \$6,628.  
Nova Scotia—Bicycle material, one package, \$20.  
Peru—Bicycle material, one case, \$49.  
Riga—Bicycles, thirteen packages, \$810.  
Rotterdam—Bicycles, two cases, \$71; bicycle material, twenty-three cases, \$1,210.  
Southampton—Bicycle material, forty-seven packages, \$2,544.  
St. Petersburg—Bicycle material, one package, \$15.  
Stockholm—Bicycles, one package, \$40; bicycle material, fourteen packages, \$389.  
United States of Colombia—Bicycle material, two cases, \$24.  
Warberg—Bicycle material, three cases, \$205.  
Gothenburg—Auto parts, one package, \$160.  
Glasgow—Motor vehicles and parts, two packages, \$1,520.  
Hamburg—Motor cycles, one case, \$75.  
Liverpool—Auto vehicles, two packages, \$4,455.  
London—Motor vehicles and parts, fifteen cases, \$7,430.  
New Zealand—Auto vehicles and parts, three cases, \$350.  
Southampton—Motor vehicles and parts, one package, \$152.

#### Endurance Trial of the Baker Racer

Cleveland, Ohio, July 14.—M. L. Goss, secretary of the Baker Motor Vehicle Co., says the Baker racer will be tried in the near future in different manner from the original disastrous speed test. It will be tested for endurance of battery. It is believed that on account of the wonderfully fine mechanism and perfect bearings in all parts, as well as the efficient battery, it will be possible to cover over 200 miles on a single charge of the batteries. It is probable such a trial will be made on Glenville race track. The company has not abandoned the idea of developing the full speed of the machine.

#### Dyke's Center Steering Fittings

The center steering fittings shown herewith are those put out by A. L. Dyke, St. Louis, Mo. The set is com-



Dyke's Lever Steering Device.

posed of the handle with grip fitted, the upright to which the lever is attached at the top and the short lever at the bottom, by means of which the rods connected to the steering knuckles are attached. Fitted over the upright rod are two loose collars flared at their inner ends to allow of being readily attached to the body, screw holes being drilled for that purpose. All the parts are strongly made to provide the security necessary in that vital part of the construction. The

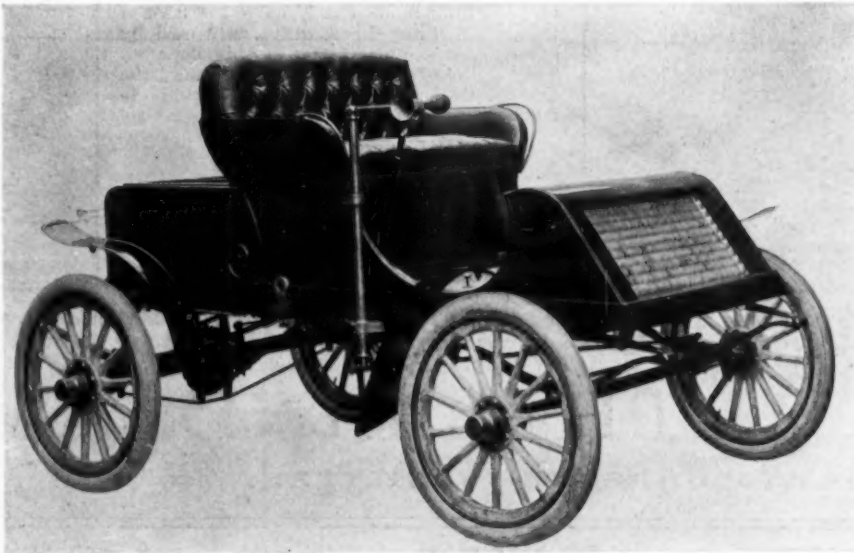
# The "CLEVELAND" 6 H. P. Gasoline RUNABOUT.....

Long  
Wheel Base  
  
Reachless  
Running Gear.  
  
A Good  
Hill Climber

Immediate  
Delivery.

Write for  
Catalogue  
and Terms.

**The Hansen  
Automobile Co.**  
Helden and Mason Ave.  
Cleveland, Ohio.



EVER  
TRY TO  
REPAIR  
A TIRE  
WITHOUT  
A JACK?

?

## THE B. B. JACK

CAN BE CARRIED IN ANY TOOL BOX  
AND APPLIED INSTANTLY. LIGHT  
IN WEIGHT AND WILL LIFT ANY-  
THING FROM A TABLE TO A TROL-  
LEY CAR. :: :: :: :: ::

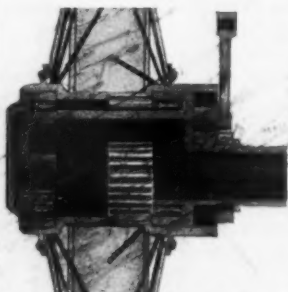


**BRAY MANUFACTURING CO.**

Factory: NEWARK, N. J.



# DO PATENTS PROTECT?



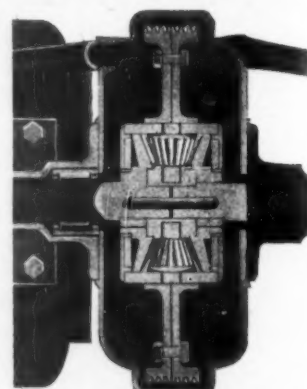
Lindsay's Patent Anti End Thrust Transmission.

**LINDSAY PATENTS** will protect all of our customers. They are broad in their scope, too. They cover a lot of things which are almost universally used by automobile manufacturers in this country. They are old patents, too; were, in fact, the first applications on the modern automobile to reach the patent office. They cover

**Differentials,  
Tubular Axles.  
The use of a Live Shaft in  
a Tubular Axle,**

and a few other such important items as these. Our customers will receive full privileges

under our patents by simply buying Rear Axles and Differentials from us. **Manufacturers who want THE ONLY Anti End Thrust Rear Axle and Drive Shaft made, will buy**



Lindsay's Patent Differential and Shaft Coupling.

## THE LINDSAY.

CORRESPONDENCE SOLICITED.

**LINDSAY AUTOMOBILE PARTS CO.,** Corner South Street and Senate Avenue  
INDIANAPOLIS, INDIANA, U. S. A.



"RUBBER NECK" GENTS'.

Dimensions—Length, 9 inches; Width, 7½ inches.



"RUBBER NECK" RACER.

Dimensions—Length, 11 inches; Width, 7½ inches.

Why sell cheap stuff and make but a bare living?

Sell "Rubber Neck" Saddles and swell your bank account.

All our "Rubber Neck" Saddles are built on strong steel foundation plates which are stamped to form, and the edges are cloth lined. The patented rubber cushions are connected to these plates, and then artistically covered with selected number one stock of soft leather in standard colors. Sewing is even and firm, and the edge stained, rubbed and polished. We make six styles of Rubber Neck Saddles.

Send for complete Catalogue of Saddles, Tool Bags, Tourist Cases, Saddle Springs, Saddle Clamps, etc., also for Hangers of "Rubber Neck" Saddles.

## The Bunker Saddle Co.

CHICAGO, ILL.

set can be attached to any vehicle. A wheel steering set is also furnished which can also be attached to any vehicle.

### Oldsmobile Company of Great Britain

The Oldsmobile Co., of Great Britain (Limited) has been incorporated with a capital of \$15,000 in \$5 shares. The objects are to adopt an agreement with F. W. Peckham and to carry on the business of manufacturers and repairers and agents for the sale and purchase of automobiles, motor cars, carriages and motor cycles, etc. The first directors are P. J. De Galindez, J. De Galindez and F. W. Peckham. Where the head offices are to be is not stated, but it is supposed London will be the location.

### New Incorporations and Enterprises

KNOXVILLE, TENN.—Automobiles are to be manufactured at the Biddle Mfg. Co.'s plant. Rodgers & Co. are interested, but John Biddle, who has been modeling and perfecting a machine for some time past, will have a large interest in the business. The engines and most of the important parts of the autos will be manufactured here, but for a while, at least, the wheels will be bought from other factories. In connection with the automobile business the plant will manufacture gasoline engines, for sale separately.

BOSTON, MASS.—The Engineering Co. of America has been incorporated under the laws of New Jersey to take over the Cunningham Engineering Co. of Boston, a Massachusetts corporation with a capital of \$100,000. The charter of the Engineering Co. will permit the construction of heavy steam vehicles of two tons or over, the development of transportation companies in different cities and the construction of apparatus for electric cars. The Engineering Co. is capitalized for \$2,000,000 6 per cent non-cumulative preferred and \$3,000,000 common.

SPRINGFIELD, MASS.—Edward Cowan has bought from James A. Turnbull, Jr., the automobile station at 36 and 38 Dwight street and will run it as a repair station and stable for autos. The station was operated by the firm of Cowan & Turnbull until last January, when Mr. Cowan sold out his interest to his partner, who kept the station until last Wednesday, when Mr. Cowan bought out his former partner. The station is well equipped for charging storage batteries and will be open day and night.

LOS ANGELES, CAL.—The Golden State Automobile Co. has purchased the plant and the good will of the Christman Motor Carriage Co. and will remove to the premises occupied by the latter company. H. W. Lupton, the manager of the Golden State Automobile Co., says that his company has also secured the privilege to manufacture and sell the Christman muffler. The company will do a general supply and repair business in connection with the manufacture of vehicles.

MASON CITY, MO.—F. R. Walters, of Walters Bros., who want the city to give them a building for an automobile factory, has been here and met the council and business men. They invited Mr. Walters to locate his factory in Mason City and offered a building free of taxes for five or ten years, with free light and water. They would give him a building with plenty of ground so that if the factory prospered it could have room to build.

OAK PARK, ILL.—The Hafner & Willing Machine Co. has finished the exterior and interior remodeling of the old Kenilworth Hall building and has installed its machinery for the building and repairing of automobiles. The basement has been floored with cement. The second floor is used for the steel-working machinery, each machine being operated by a separate electric motor.

KANSAS CITY, MO.—J. K. Landis Automobile Transfer &

Carriage Co., capital \$5,000, all paid up. Incorporators—John K. Landis, Zenora Landis and Benjamin Landis.

### Items of Commercial Interest

A letter from Boston says that the present is a most busy season with the Waltham Mfg. Co., manufacturers of bicycles and automobiles. A large number of employees are at work and so rushed is the company with orders that it is necessary to run the factory Saturday afternoons and holidays. This is almost the only manufactory in Waltham that is run Saturday afternoons during the summer.

Tiffany & Co. have given orders to the Vehicle Equipment Co. for three high-class electric wagons, which, in design, will excel anything thus far seen upon the streets of New York. The Rainey Co., agent for the Vehicle Equipment Co., also has sold several showy vehicles and business wagons to parties in Atlantic City.

It is likely that a number of machines with tonneau bodies at prices in the neighborhood of \$1,200, will be offered next season. At least two are known to be in preparation. One of them is the Friedman. It will be offered either with the present form of driving mechanism or with the Upton or Champion transmission.

The Motor Truck & Vehicle Co., of Columbus, has produced about a half dozen large trucks. So far as appearances go the wagons are all that could be desired. Two of them were recently seen in operation by a MOTOR AGE man after they had been used 6 or 7 months. Their operation seemed to be perfect.

R. H. Cloughley, of the automobile company which bears his name and which has been doing business at Cherryvale, Kas., has concluded that that location is too far from the base of supplies and is at present in Chicago. He will endeavor to organize a company in some Illinois town.

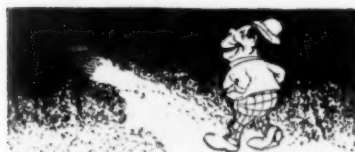
The National Sewing Machine Co., of Belvidere, Ill., will not be long getting some of its cars ready for the market. The entire attention of the company has been given to the engine, and having perfected this the remainder of the machine will be taken in hand at once.

There is no truth in the story that the Electric Vehicle Co. will manufacture Panhards in this country. It is true, however, that the company is working on more than one gasoline car, and that it expects to be in the field quite actively by the opening of next season.

The first Toledo touring car arrived in Chicago on Saturday and was immediately delivered to its purchaser. A second machine of the same make is to be delivered to President Donald of the Chicago club some day this week.

T. Wells Goodridge, formerly of the Electric Vehicle Co.'s Hartford establishment, has joined the automobile staff at the Studebaker factory, South Bend, Ind.

The directors of the Massachusetts club have called the attention of members to the fact that any one convicted of driving his automobile faster than the law permits may be expelled from the club.



"Hello, dat must be my friend Mistah Smiles."



"How'-do, Smiley, ol' man. Wha' fo' you—"



"Hittin' yo' ol' friend like dat?"

## ♦♦ From the Four Winds ♦♦

New York, July 12.—The steel roads committee of the Automobile Club of America is making rapid progress in its work, and through its energy, together with the liberality of the United States Steel Corporation and the hearty co-operation of the city authorities, a thorough demonstration will very soon be made of the merits of the steel highway system, under various conditions of service. The chief difficulty was to get the special shape of steel rolled; none of the outside mills were willing to furnish it, or even to take an order for regular sizes requiring prompt delivery, but when Chairman Seligman of the committee met President Schwab he found him in full sympathy with the movement and ready, not only to furnish the special forms and deliver them promptly, but to contribute the steel for a mile of road as a free gift.

General Stone, the designer of the proposed road, has already conferred with the steel corporation's experts on the details of construction, and the material will be delivered in 6 weeks. President Cantor has shown a warm interest in the affair, and by his direction Chief Engineer Olney is to recommend suitable locations for sections of the road. It is intended to place one in the heavy trucking region down town, another in a street of general travel, and a third on a suburban earth road. The track plates will be 12 inches wide and will be laid on special foundations of broken stone. An English engineer, who recently inspected the steel road at Valencia, in Spain, reports in the highest praise of it in every particular. This road has been in use for 10 years.

### Wants to Restrain Automobile Club

Residents of Arverne-by-the-Sea, L. I., are seeking an injunction to restrain the Arverne Automobile Club from continuing the erection of its clubhouse at the Boulevard and Meredith avenue, work on which is now in progress. The site is in the heart of the finest residence section of the place. Objection to the clubhouse is based upon the fact that the plans show that the building will have storage capacity for 100 automobiles. It is asserted that all this property is held under restrictions that none of it shall be used either for stables or stores, and it is maintained that a storage place for automobiles will make the clubhouse a stable, and therefore bring it under the ban.

### Denver Club Will Enforce Law

The Colorado Automobile Club, of Denver, has already reached a membership of sixty-five. The club has proposed the passage of an ordinance making the maximum speed in the principal streets of the city 10 miles an hour and in other parts 15 miles an hour. The club intends to first reprimand and, on a second offense, expel a member for infraction of the law and to appoint a committee to remonstrate with offenders who are not members of the club.

### President Becomes Prosecutor

Cleveland, O., July 14.—The first trial under the new automobile ordinance will be that of Superintendent Movers, of the Peerless Company. He was arrested a few days ago in the complaint of E. Shreever Reese, president of the automobile club for exceeding the speed limit in the downtown section of the city. The trial will come off this week and Mr. Movers is expected to put up an unique defense. He claims the high speed of his machine resulted from an accident. According to his story a nut jarred off the lever in the sparking device, allowing the spark to drop forward at highest

point of speed. It took him several minutes to discover the cause of the unusual speed and while he was looking for the "trouble," the worthy club man overhauled him. Explanations were of no avail, so Movers claims, and the warrant was soon out. The superintendent thinks the official should have appreciated the difficulty and overlook the matter.

### Motor Cycle Economy Test

The New York Motor Cycle Club is planning for a 100-mile economy test within the next four weeks. At its meeting this week the following prominent makers and tradesmen were elected members: C. H. Martin, Indianapolis; C. A. Persons, New York; W. T. Marsh, Brockton; C. F. Splittorf, New York; William Merkel and J. W. Merkel; Jean Tauty, New York, and George M. Holley, Bradford, Pa.

### Old Numbers of Motor Age Wanted

L. M. MacDermot, 1407 Eighth street, Oakland, Cal., is badly in need of back numbers of MOTOR AGE. The numbers required are as follows: The whole of Sept., Oct., Nov., Dec., 1899, and March, May 31, July 5 and 26, Dec. 13 and 20, 1900; Feb. 6, 13 and 27, April 25, Aug. 15, 29, Sept. 5, 12, 26, Nov. 14, 21, Dec. 12, 1901. Mr. MacDermot will be glad to exchange any numbers of which he has duplicates or will pay reasonably for the missing numbers.

### Glidden on a Long Tour

New York, July 6.—Charles J. Glidden, of the Massachusetts Automobile Club, the Automobile Club of America and the Automobile Club of Great Britain, sailed on the Lucania today for a 1,000-mile tour of France, Germany and Switzerland. He took with him for his use on the tour the Napier which won first prize at the Crystal Palace show for the best appearing British vehicle.

### French Automobile Ambulance

Experiments have been made at Marseilles, France, with an automobile ambulance. The vehicle is divided into two distinct parts; the forward part supports the mechanism and the gasoline reservoirs. The vehicle is driven by two 6 horsepower motors coupled, but they may be run independently. The other part is reserved for the patients and is preserved by rubber cushions from bumping and rough handling. It has accommodations for four patients, two lying and two sitting. In the corner is a small space for the attendant. The medical cases are on top of the vehicle. The vehicle has three speeds, 4, 8 and 16 miles. The result of the trials was so satisfactory that after a few improvements the service will be adopted by the military and municipal authorities.

Another series of speed trials will occur at Bexhill, England, on August 4.

Several members of the Chicago club went over the endurance course last Sunday and found it in fair condition. Two cars covered the distance at a speed of 17 miles an hour or better.

After all the efforts of Philadelphia automobilists to teach the city fathers what ought and ought not to be done in the matter of speed laws the council disagreed, and no action is likely to be taken until fall.

The Chicago club has decided to issue a hand-book and has appointed a committee to prepare it. At a meeting last week it was decided to promote a race meeting, at Joliet or elsewhere some time late in August or early in September. A special committee is to be appointed to take charge of it.



# THE BAKER

IF IT'S A BAKER IT'S THE BEST

The Most Efficient of all Electric Vehicles



THE LIGHTEST WEIGHT  
THE STRONGEST MADE  
THE BEST FINISHED



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The Baker Motor Vehicle Co.,  
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## 1902 Kelly Adjustable Handle Bars

STANDARD BARS OF THE WORLD



No. 3 Arms, Regular Stem.



No. 5 Side Arms,  
1 in. Forward Extension.



No. 4 Racing Arms,  
2 1/4 in. Forward Extension.

It will pay all manufacturers these times when competition is hot, to see that their wheels are equipped with just the attachments demanded by the rider. Every rider knows the merits of KELLY BARS, as they have been for the past six years the most popular and foremost sundry in the cycle trade.

## THE KELLY HANDLE BAR CO.

CLEVELAND, OHIO, - - - - - U. S. A.

# THE BRAZIER TOURING CAR

**Beats Them All  
In Comfort and Durability**

We know what it will  
stand, so guarantee a  
maximum figure on  
the repairs :: :: ::

Heavy Busses and  
Business Wagons built  
to order; some now  
under construction ::

We handle Experimental Work.

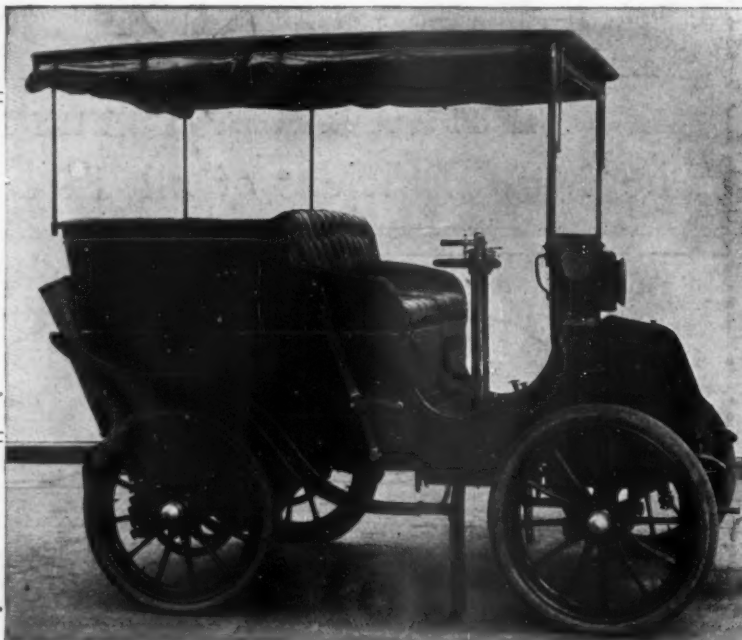
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Manufacturer of  
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An everyday Autom-  
obile for everybody.

Just the thing for pleas-  
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PRICE, \$650.00

**SIMPLE  
DURABLE  
ECONOMICAL**

**200 MILES  
ON ONE CHARGE  
OF GASOLINE**

**Spaulding Automobile & Motor Co.**  
63 Chandler St., Buffalo, N. Y.

### Late Issues From the Patent Office

No. 703,436, to Wilhelm Maybach, of Cannstadt, Germany, covers an arrangement for drawing air through the cooling apparatus for the motor. It consists of an airtight protecting box around the motor, in the front wall of which box the water cooler is situated, while in the back wall of the same a ventilator is arranged. The ventilator is in the form of a rotary fan by which the air and vapors from the motor is drawn out of the case and as the cooler is arranged to allow of free passage of air through it and into the case a constant current of air through the case is maintained. Mr. Maybach has been granted a number of American patents, the greater part of which cover devices used in the Cannstadt Daimler vehicles.

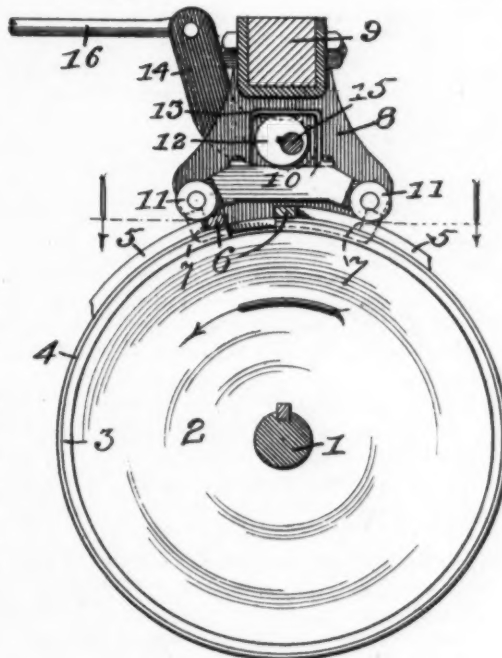
No. 703,459, to John E. Peterman, of Indianapolis, Ind., is devoted to an arrangement for transforming an ordinary vehicle into an automobile. The device, in common with practically all similar schemes, is effective in theory rather than in practice, as even were the mechanism all that is desirable the ordinary road vehicle is entirely inadequate to withstand the strains of an internal motive power.

No. 703,552 and 703,553 are to Walter A. Crowds, of Chicago, Ill. The hand lever is hinged to a vertical pillar to allow of a vertical movement of the lever. Surrounding the pillar and rigidly secured to the vehicle is a flange or plate in which is a segmental groove, concentric with the steering pillar. Secured to the pillar is a bracket containing a vertical lock bolt, the lower end of which fits into the segmental groove. Both the bolt and groove are tapered so that depressing the lock bolt will effect a strong frictional engagement between the bolt and the sides of the groove, which will effectually prevent rotation of the steering post thus relieving the operator from all strain due to a tendency on the part of the wheels to swing out of line when meeting obstruction in the road. When it is desired to move the wheels a slight lift of the lever releases the lock. The second patent covers a novel brake of the band type. Referring to the illustration, 1 designates the revolving shaft, 2 a brake drum secured to said shaft, and 3 a brake band applied to said drum. The ends of the strap 4 of the brake band are anchored to rigid support by means of a connection therewith adapted to permit a slight movement of the brake band in either direction. Metal plates 5 are secured to the ends of the brake band and from these plates outwardly projecting lugs 6 are adapted to engage and normally rest against shoulders 7 on the bracket 8 which is secured to a rigid support 9 adjacent to the brake drum. The length of the brake band is such that when both ends rest against their respective stops the brake is released. Preferably the strap is in the form of a spring whose normal diameter is greater than the brake drum so that when the brake is released the elasticity of the strap will entirely release the strap from the drum. The bracket 8 comprises two webs extending down on each side of the band and thus form guides to retain the band in operative position upon the drum. The ends of the band are adapted to be depressed into frictional engagement with the drum by a shoe 10, supported so as to be movable toward or from the drum, which overlaps the ends of the band and has mounted in its ends rollers 11, adapted to bear upon the plates on the ends of the brake band. The shoe is depressed by means of an eccentric 12, mounted in the bracket and operated by suitable levers and connections. A strap 13, passes over the eccentric and serves to lift the shoe when the brake is released. In operation the shoe

is depressed and forces the ends of the brake band into frictional contact with the drum. Such engagement will tend to impart movement to the band in the direction of rotation of the drum. As the end of the band in the direction of rotation is already resting against the right bracket it is held against rotation with the result that the action on the part of the other end tightens the band on the drum and retards its revolution. The inventor has designed a number of powerful brakes and states that the one described is so extraordinarily powerful that it is advisable to introduce a spring in the operating mechanism as a sudden application of the brake is liable to induce skidding.

No. 703,649, to Edwin R. Gill, of Englewood, N. J., covers a system of electrical propulsion for vehicles, the distinctive feature of which is the form of the motors of which there are four, one on each wheel. The motors are circular in form and open in the center so that they may be bolted to the spokes of the wheel and allow the axle to pass through. The armature is bolted to the spokes and is provided with a ball bearing support for the field magnet. This ball bearing furnishes the only support for the field which is prevented from rotation by flexible connection with the body.

No. 703,769, to George E. DeLong, of New York, N. Y., assignor to the Industrial Machine Co., of Phoenix, N. Y., covers a motor cycle the distinctive feature of which is the simplicity of outward appearance. The



Crowds Band Brake.

gasoline is carried on the upper frame tube and the batteries and coil in the lower tube. The carburetor is of the atomizer type and is located within the seatmast just above the motor. The device is all right in theory, but the gasoline supply would necessarily be limited, and if there is a coil and batteries now made that would go within the limited space of a frame tube they are not yet in the market.

No. 703,844, to F. J. Stallings, of Effingham, Ill., covers a running gear and driving mechanism for automobiles, which contains no new features of sufficient promise to be worthy of extended consideration.





# THE CYCLE AGE

Racing for the American professional championship, now held by Frank L. Kramer, of East Orange, N. J., began with the opening of the N. C. A. grand circuit at

Revere Beach on Saturday night. The meets already scheduled for July average three a week, and with the rush for dates that always come after the championship racing starts, there will be few days up to the end of September that will not be marked by a championship race meet. Last year's circuit meets, with hardly an exception, were big paying investments to the promoters and more money was distributed among the riders than they had had a chance to ride for for several seasons.

There are some notable changes in the running of this year's meets and especially the championship events. The old style of big fields was abandoned last year for the foreign fashion of two men matches. Last season after four trial heats two men rode in each of the semi-final and grand semi-final heats, and a pair fought it out in the final. The European innovation failed to win favor with the general public, though the "fans" thought it all right and in the jockeying and the final dash for the tape saw fine points of the racing art enough to interest them.

This year's method seems likely to prove a happy medium between the two. The championship candidates are to be divided into five trial heats, two in each qualifying for two semi-finals, from which in the same way four are to be evolved for the final. This gives three sets of heats with practically a quartette, an interesting number for a good race in each. The winner will score five points; second, three; third, two; and fourth, one; with double these points in the national championships, of which there is one race each at the standard distances of quarter, third, half, mile, two and five.

At each national circuit meet there must be three professional races, a championship, a handicap and a consolation. This also changes last season's events, which consisted of a championship race for those who had mile records better than 2:10, a 2:10 mile and a handicap.

The minimum purse aggregate at a circuit meet is fixed at \$350. It is distributed as follows: Championship race, purse, \$175; divided: \$100, \$50, \$15, \$10. Handicap, purse, \$125; divided: \$60, \$30, \$20, \$10, \$5. Consolation race for those who have not won money in

the championship or the handicap race, purse, \$50; divided: \$20, \$15, \$10, \$5. It will thus be seen that the \$350 prize money is split into thirteen parts, giving every one a fair chance for a share of it.

In the face of such liberal conditions the number of riders who will follow the circuit, competing in the championship race, and in the other two contests, is large.

The American Cycle Mfg. Co. again backs the game and shows its belief in cycle racing in general, and the national circuit in particular as a factor in booming the bicycle, by supporting a large team of crack riders.

The "A. B. C." men entered for the championships



Eddie Bald, who has returned to the path and developed winning form.

are: Iver Lawson (Cleveland), E. C. Bald (Columbia), John T. Fisher (Monarch), Owen Kimble (Rambler), William Martin (Cleveland), George Schrieber (Imperial), Fred Beauchamp (Columbia), Lester Wilson (Rambler), and John Bedell (Columbia).

The other candidates at present entered for championship honors are: Frank Kramer (Pierce), George Col-

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NO STRAIN.

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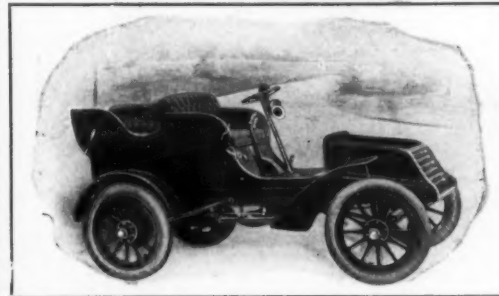
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Winton Touring Car.

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**THE WINTON MOTOR CARRIAGE CO.**  
**CLEVELAND, U. S. A.**

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## American Tubular STEEL WHEELS



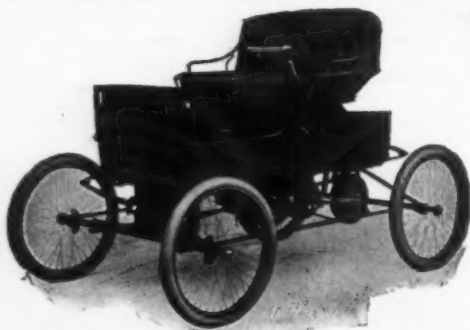
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MODEL 1902.

8 H. P.

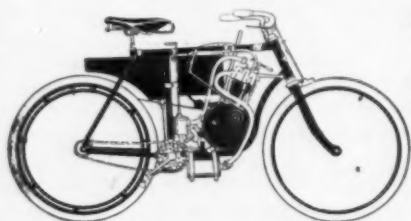
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**Powerful, Practical and Reliable.**

All ordinary hills can be ridden on the high speed without the use of gearing. Speed controlled from 4 to 25 miles per hour, simply by pressure of toe on the throttle. Will climb 25 per cent. grade with two persons. :: :: :: :: :: :: ::

Write for Catalogue. ✱ ✱ Agents Wanted.

**WALTHAM MFG. CO.,**  
WALTHAM, MASS.

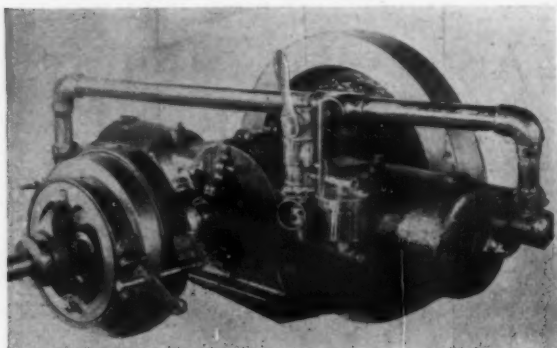


## ORIENT MOTOR BICYCLE

PRICE Fitted with the New Orient 3 H. P. Motor.  
\$250.00 Speed over 40 miles per hour.

The Most Powerful Motor Bicycle in the World.  
Write for particulars. Agents wanted.

**WALTHAM MFG. CO.,**  
WALTHAM, MASS.



## BRENNAN STANDARD GASOLINE MOTORS

Manufactured in sizes from 4 to 30 H. P.

They are perfectly balanced, smooth running, will save wear and tear on your auto. Referring to speed, our 6 H. P. will develop its rated power at 650 revs. per minute, and 9 H. P. on high speed. Our 8 H. P. will develop its rated power at 750 revs. per minute; will develop 12 H. P. on high speed. Guaranteed to give satisfactory results or money refunded.

Special 15 and 20 H. P. with Transmission Gear.

**Brennan Motor Co. SYRACUSE, N. Y.**

## CATALOGUE DEPARTMENT.

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1. To save the reader the trouble and expense of writing to each individual concern whose catalogue he may need.
2. To place advertisers in direct communication with the prospective purchasers.

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lett, Tom Butler and Jed Newkirk. "Major" Taylor (Iver-Johnson) on his return from Europe last week went straight to his home at Worcester. It is assumed that he will join the circuit before it is very old. Floyd McFarland (Tribune), George Leander (Crescent) and W. S. Fenn (Columbia) are in the paced game. They have not signed for the championship, but will be frequently seen in the other races at circuit meets.

Some of those who will form the circuit will doubtless enter before long in the championship contest. The circuit chasers outside of the championship candidates will be: Dan Sullivan, Charles Hadfield, Frank Krebs, Floyd Krebs, L. R. Lake, J. P. Jacobson, Walter Bardgett, R. M. Alexander, W. A. Rutz, Menus Bedell, R. A. Carni, T. J. Grady and John King.

Following Revere Beach on last Saturday, New Haven on Tuesday, and Providence on Wednesday, the circuit chasers will be at the L. A. W. meet on Saturday night at Atlantic City, at which meet the one mile national championship (double points) will be decided. The other circuit dates arranged for July are: Pittsburg, 21; Washington, 23; Baltimore, 24; Vailsburg, 26; New Haven, 29.

#### CYCLING'S SILVER JUBILEE

Nearly 2,000 Riders in the Parade at New York on Saturday Last Celebrate the Event

New York, July 12.—Though the days of uniforms and processions belong now rather to the hurrah period of the past, the parade promoted by the associated cycling clubs of New York and Long Island to-day in honor of Cycling's Silver Jubilee was a very creditable and quite numerous function for the times. It showed how live the interest in bicycles still is.

Fifth avenue from the start at Washington square to the reviewing stand at 96th street was well lined with people, and that means spectators up in the tens of thousands. The ten New York clubs had about a thousand men in line. Brooklyn contributed 125 in two clubs, and Newark seventy-five in one. There were over 300 unattached riders in the procession. This does not include the grotesque and fancy costumes, the veteran, the motor cycle, the multicycle and the decorated wheels divisions. In all including officers and aides, there were probably 1,700 cyclers in line. The procession was headed by the New York Motor Cycle Club, which had out twenty-five bicycles, whose riders showed excellent control of the machines at the slow parading pace.

The hit of the parade was made by the Caledonian Wheelmen, who were preceded by twenty bare-legged and kilied Highlanders on bicycles. The Century Wheelmen and the Century Road Club Association turned out over two hundred riders each. In the veteran division were such well known old timers as "Pop" Brewster, Sam T. Clark, Alex Schwalbach and Will R. Pitman.

Numerous prizes were offered for clubs and individual riders. The winners were:

Greatest number in line over 150: Century Road Club Association, 1.

Greatest number in line between 50 and 100: Century Wheelmen, 1; Royal Arcanum Wheelmen, 2.

Greatest number 50 or less: Calumet Cyclers, 1; Ianthia Wheelmen, 2.

Best appearing club: Century Wheelmen, 1; Royal Arcanum Wheelmen, 2; Ianthian Wheelmen, 3. Honorable mention, Royal Wheelmen of the Bronx.

Best appearing lady: Miss Grace Forbes, 1; Miss Bessie Wood, 2; Miss Anderson, 3.

Best decorated bicycle: A. C. Buschell, 1; Miss Anderson, 2; E. A. Weil, 3.

Best appearing visiting club: Bay View Wheelmen, of Newark, 1.

Best appearing and controlled motor cycle: C. H. Mankowski, 1; C. H. Martin, 2; J. C. Tanti, 3.

Most grotesque costume: Charles Veri, a soubrette, 1; George Siebert, a farmer on a high wheel, 2; W. A. Siebert, a clown on a bone-shaker, 3.

Best appearing multicycles: Ravaturn Wheelmen's triplet, 1; Greenwich Wheelmen's tandem, 2; Ianthia tandem, 3.

#### \* FINAL OF THE GRAND PRIX

Meyers, Grogna and Ellegaard Finish in Order Named Less Than a Foot Separating the Three

The final of the Grand Prix took place in Paris on the Princes track on June 29, 15,000 spectators being present. The first semi-final was run with Meyers, Arend and Didier, the pace being slow until the bell lap, when



CYCLING'S SILVER JUBILEE.

Cup Presented by Alderman Oatman and Won by the Century Wheelmen.

Arend tried to jump the bunch, but the Dutchman went after and passed him in the stretch, winning by half a length. Arend was second and Didier third. In the second semi-final Momo, Meyers and Ellegaard lined up and Ellegaard made a wonderful sprint just at the tape and won by a safe margin. The last of the semi-finals had Grogna, Rutt and Domain as starters. They got away at a fast clip and kept the pace lively until the last lap, at which point Grogna pulled away from the bunch, finishing alone by two lengths.

The final brought the stars of the tournament together, Meyers taking the pole at the gun, the pace being slow. This was kept up until the bell lap, at which time Ellegaard took the lead, but soon gave way to Meyers, who passed him on the back stretch, at the same time increasing his speed into a terrific sprint. On the last turn all three had bunched and were riding side by side. Down the stretch they came all abreast, and it was not until the tape was crossed that the winner could be determined, and then it took the judges some time to figure out that Meyers had won the classic event, with Grogna second and Ellegaard third. A great demonstration greeted the winner as he rode around the track, and although he was not a Frenchman, he was given a reception that was well worth the effort he made to win the event.

The final of the amateur Grand Prix was won by Piard, the world's champion, by one length from Sanz and Earnest. The hour race was contested by Linton, Taylor, Bouhour, Cornet and Pepoutre. Bad spills put Linton practically out of the game and almost caused Bouhour to quit, but the plucky Frenchman continued against the great odds and eventually won by six laps from Linton. Distance, 61 kilometers, 950 meters.

#### MOTORS HAVE LAZY SPELL

##### Refuse to Set Pace and Cause Postponement of Race at Manhattan Beach

New York, July 12.—The attempted four-cornered motor paced race between Albert Champion, Nat Butler, Tommy Hall and Basil de Guichard, at Manhattan Beach this afternoon, ended in a fizzle and a postponement until next Saturday. Butler's tandem went wrong before the start and he refused to accept the loan of a 4-horsepower machine. The race was started without him and then the 3,500 spectators, not knowing the circumstances, raised such a howl that the men were called back after they had gone a mile. At the next attempt, Champion's tandem's chain broke when he was in the lead at a mile. It was then almost dark and the race had to be abandoned.

Glasson and Schlee were on scratch with Hurley in the two-mile handicap; but they abandoned him after two laps and quit. The champion plugged on, however, despite the gale blowing and, unpaced, caught the bunch as it entered the stretch and beat it out at the tape in 4:39.

#### "SPARTAN RACE" AS A NOVELTY

##### Liberal Lap Prizes Result in Fast Racing, But Kramer Wins, as Usual

Newark, N. J., July 13.—Manager Voigt carried his lap prize idea a little further at Vailsburg to-day and put on what he called "a Spartan race" for the professionals. It was a two-mile scratch contest with \$10 to the leaders at each lap. It was thought that the cracks would go for laps thus richly rewarded and that it would result in a bruising race. They did, and it did. Kramer won, but he was carried along by the continuous sprinting in 4:11, which is probably the fastest two-

mile scratch race ever run, though the competition record is Kramer's—3:59 4-5, made in a handicap in a continuous ladder-climb. There were thirty-three starters, including Kramer, Bald, Bedell, Fisher, Lawson, Collett, Martin, Beauchamp, Kimble and Fenn. John Bedell was second, Kimble third, Lawson fourth, and Fisher fifth. The lap prizes were won as follows: Hansman first, Floyd Krebs, second, third and fourth; Bald fifth, Fenn sixth, and Tom Butler seventh.

Hurley won the half-mile open in 1:05 2-5, with Billington second, Glasson third and Coffey fourth. The 5-mile handicap final also went to Hurley (scratch), who just beat out Schlee (50) at the tape in 11:15 with Glasson (scratch) third and Cameron (150) fourth. Joe Delner won the quarter-mile novice in 32 1-5, a new novice record for the track.

#### Opening of the Championship Season

Burton, Mass., July 12.—Frank Kramer opened the national circuit at Revere Beach to-day with a win of the championship half in 59½ seconds. Kimble started to make a runaway of it from the first lap, but was caught and passed by the trio in the back stretch of the last eighth-mile lap. Collett finished second and Bald third. This results in the following opening score of the championship table: Kramer, 5 points; Collett, 3; Bald, 2; Kimble, 1.

Iver Lawson won the 10-mile open in 22:43 with Rutz second, John Bedell third and Martin fourth.

Rev. Isaac Houlgate has issued a guide to Minneapolis cycle paths, with a map, history of the cycle path movement, mileage of various kinds of paving, a list of members of the Minneapolis Cycle Trade Association and a list of the churches on paths or well paved streets. The guide shows that Minneapolis has a total of over 103 miles of well paved streets.

The Wheelmen's Club of Omaha has been organized to renew interest in cycling. A short run of about an hour will be made every evening, starting from the Omaha Bicycle Co.'s store.

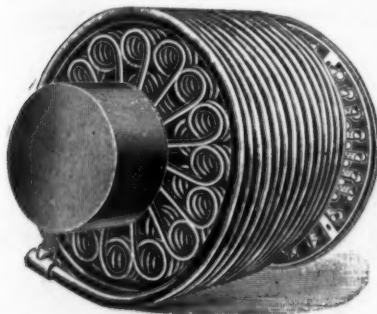
An event which was expected to provide splendid sport was a one-hour race at Charles River Park, Boston, between Elkes and Walthour on July 4. The latter's pacing machines went wrong in the second mile, however, and he was hopelessly out of it. Elkes stopped at thirty miles, ridden in 44 minutes 32 seconds.

Jimmy Michael, it is said, has again become tired of horse racing and will return to New York to again follow pace on a bicycle. Michael has had poor luck as a jockey since he went abroad.

At the Crystal Palace, London, on June 21, H. Martin rode 5 miles on an Excelsior motor bicycle, with flying start, in 7 minutes 25 2-5 seconds. On June 19 the same rider had covered a mile, with flying start, in 1 minute 25 4-5 seconds.

It is reported in the east that Colonel Pope expects to obtain control of the Hartford Rubber Works Co.

ROSEAU, MINN.—A passenger automobile is being used as an experiment over the star route between Stephen, in Marshall county, and this place.



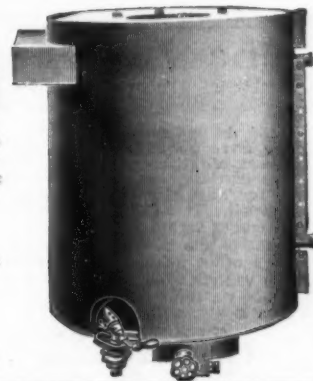
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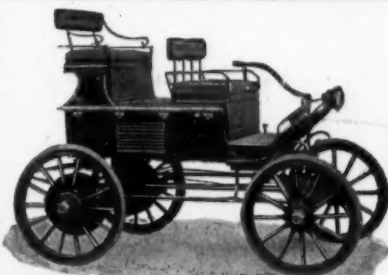
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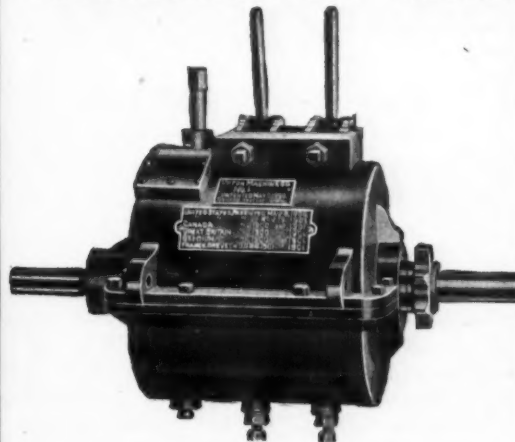
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Most Complete on the Market  
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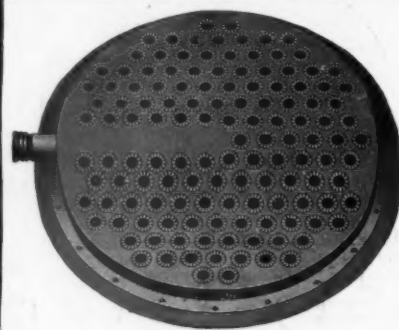
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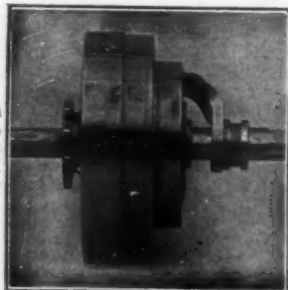


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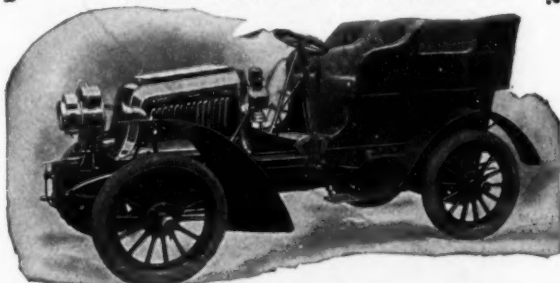
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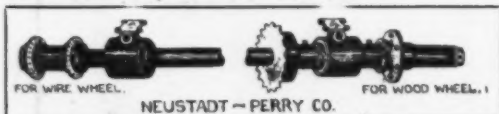
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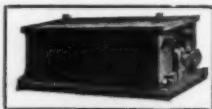
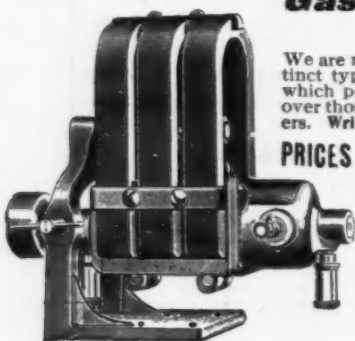
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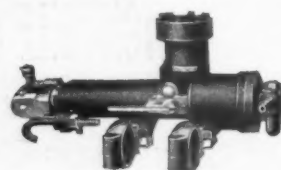
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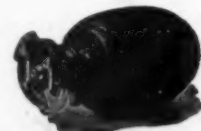
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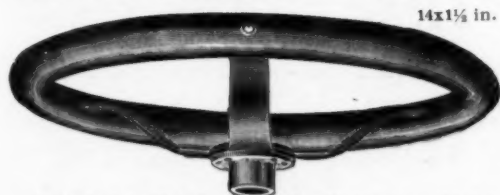


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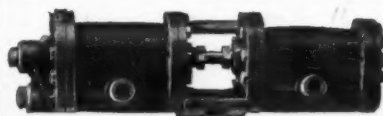
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**FOR SALE.**—Well equipped bicycle shop and store in Iowa. O. S. W., care MOTOR AGE. 25



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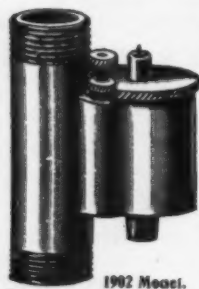
Manufacturers of Single 4 H. P. Double 7 H. P., Four Cylinder 16 H. P. Gasoline, Automobile or Marine, 4 cycle Motors, Either Horizontal or Vertical. Fully Guaranteed. Prices the lowest.

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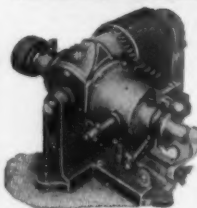
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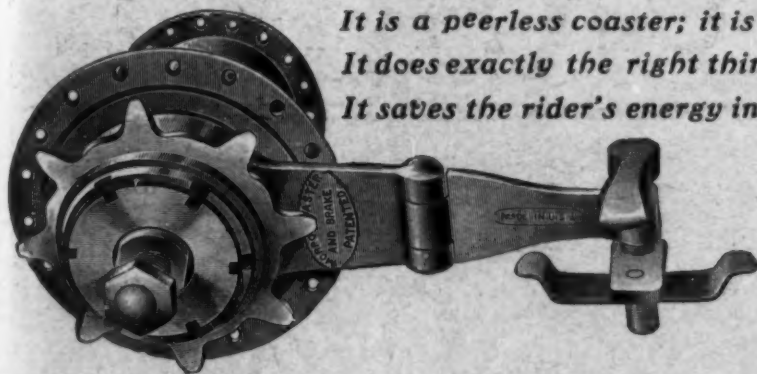
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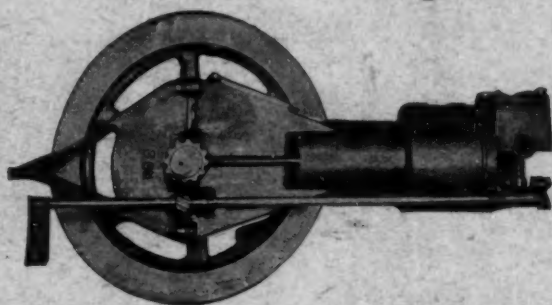
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